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TM 5-4940-200-35

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

FIELD AND DEPOT MAINTENANCE MANUAL

SHOP EQUIPMENT, CONTACT MAINTENANCE, TRUCK MOUNTED, SET NUMBER 3 (SOUTHWEST MODEL SECM) SERIAL NO. S-3-628 THROUGH S-3-730 AND (DAVEY MODEL CMU-5) SERIAL NO. 33343 THROUGH 33343-234

P90-01 31

FSN 4940-294-9518

HEADQUARTERS, DEPARTMENT OF THE ARMY
SEPTEMBER 1963

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SAFETY PRECAUTIONS

Do not connect an external power source or operate the generator-welder until it has been properly grounded. Electrical faults in the generator-welder, load lines, or equipment can cause death by electrocution from contact with an ungrounded system.

When filling the fuel tank, do not smoke or use an open flame in the vicinity. Maintain a metal-to-metal contact between the filling container and the tank to prevent sparks from being generated as fuel flows over the metallic surfaces.

Lifting equipment must have a capacity of at least 5 tons.

Do not overload shop set with additional personnel, equipment, or parts. Failure to observe this warning will result in an overloaded condition dangerous to personnel and equipment.

The voltage of the shop set is dangerous to persons coming into contact with any part of the electrical system during operation. Severe, possibly fatal, shock may result. This is especially true when the ground is damp. In case of accident, shut off the power immediately. If this is not possible, free the victim from electrical contact, using a nonconductor such as a dry board or dry rope. Avoid contact with the victim. If the victim is unconscious, apply artificial respiration and send for medical assistance.

Do not permit an energized electrode holder or electrode to touch the skin or damp clothing of the operator or nearby personnel.

When operating in an inclosed area, the exhaust gases must be piped to the outside. The exhaust gases contain carbon monoxide, which is a colorless, odorless, and poisonous gas.

To prevent eye burns, it is necessary that the eyes of the operator or the arc welder, as well as the eyes of personnel nearby, be shielded from the intense light of the electric arc. Ordinary sun glasses or gas welding goggles do NOT provide sufficient protection.

TECHNICAL MANUAL
No. 5–4940–200–35

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *16 September 1963*

FIELD AND DEPCT MAINTENANCE EQUIPMENT

SHOP EQUIPMENT, CONTACT MAINTENANCE, TRUCK MOUNTED, SET NUMBER 3 (SOUTHWEST MODEL SECM) SERIAL NO. S–3–628 THROUGH S–3–720 AND (DAVEY MODEL CMU–5) SERIAL NO. 33343 THROUGH 33343–234 FSN 4940–294–9518

		Paragraph	Page
CHAPTER 1.	INTRODUCTION		2
Section I.	General	1, 2	2
II.	Description and data	3, 4	2
CHAPTER 2	GENERAL MAINTENANCE INSTRUCTIONS		13
Section I.	Special tools and equipment	5–7	13
II.	Troubl: shooting	8–20	13
III.	Removal and installation of major components	21–24	14
CHAPTER 3.	SHOP SET MAINTENANCE INSTRUCTIONS		20
Section I.	Engine speed governor and governor adapter drive	25–27	20
II.	Engine overspeed relay	28–30	23
III.	Electric brake lock	31, 32	27
IV.	Declutcher, propeller shaft, and power takeoff universal joint and shaft assembly	33 36	28
V.	Power takeoff and power takeoff controls	37–40	33
VI.	Generator-welder	41–43	40
VII.	Controls and instruments	44–47	44
VIII.	Battery-charging resistors and resistor box	48, 49	54
IX.	Receptacle boxes and cables	50, 51	54
X.	Vehicle frame extension and shop set body	52–54	55
APPENDIX I.	REFERENCES		62
INDEX			65

* This manual supersedes TM 5–4940–200–35, 19 December 1961.

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

a. These instructions are published for the use of the field and depot maintenance personnel maintaining the Southwest Truck Body Company, Model SECM, and Davey Compressor Company, Model CMU–5, Truck Mounted Shop Equipment Set Number 3. They provide information on the maintenance of the equipment which is beyond the scope of the tools, equipment, personnel, or supplies normally available to using organizations.

b. Appendix I contains a list of publications applicable to this manual. The maintenance allocation chart is located in the operator and organizational maintenance manual TM 5–4940–200–12. Field and depot maintenance repair parts are listed in TM 5–4940–200–35P.

c. Numbers in parentheses on illustrations indicate quantity. Numbers preceding nomenclature callouts on illustrations indicate the preferred maintenance sequence.

d. The direct reporting by the individual user of errors, omissions, and recommendations for improving this manual is authorized and encouraged. DA Form 2028 (Recommended Changes to DA Technical Manual Parts Lists or Supply Manual 7, 8, or 9) will be used for reporting these improvements. This form will be completed in triplicate using pencil, pen, or typewriter. The original and one copy will be forwarded direct to the Commanding Officer, U. S. Army Mobility Support Center, ATTN: SMOMS–MM, P. O. Box 119, Columbus, Ohio 43216. One information copy will be provided to the individual's immediate supervisor (e.g., officer, noncommissioned officer, supervisor, etc.).

e. Report all equipment improvement recommendations as prescribed by TM 38–750.

2. Record and Report Forms

For record and report forms applicable to field and depot maintenance, refer to TM 38–750.

Note: Applicable forms, excluding Standard Form 46 (United States Government Motor Vehicle Operator's Identification Card), which is carried by the operator, will be kept in a canvas bag mounted on the equipment.

Section II. DESCRIPTION AND DATA

3. Description

A general description of the shop set, the location and description of the identification plates, and information on the difference in models are contained in TM 5–4940–200–12. A more detailed description of the components is contained in TM 5–4940–200–12. The repair and maintenance instructions are described in appropriate sections of this manual.

4. Tabulated Data

a. Motor-Generator Classification and Rating.

Rating	7.5 kw (kilowatt)
Voltage	208 v (volts)
Amperes	38 amp (amperes)
Phase	3
Frequency	50/60 cycles
Cooling	Fan
Lubrication	Sealed bearings

Duty classification	Continuous
Degree of inclosure	Full
Drive	Pulley and 4 V-belts
Type	Synchronous

b. Exciter Classification and Rating.

Rating	0.99 kw
Voltage	110 v, dc (volts, direct current)
Amperes	9 amp
Rated speed	1,450 rpm (revolutions per minute)
Field winding	Shunt
Cooling	Fan
Duty classification	Continuous
Degree of inclosure	Full
Mounting	Integral

c. Welder Classification and Rating.

Voltage	40 v, dc
Amperes	200 amp
Rated speed	1,800 rpm
Field winding	Shunt
Duty classification	60 percent duty cycle
Degree of inclosure	Full
Mounting	Integral

d. Motor-Generator Repair and Replacement Standards.

Revolving field:

Number of coils	4
Turns per coil	600
Turns per layer	Random wound
Wire size	No. 18 AWG (American Wire Gage)
Type of wire	Copper magnet wire, heavy eze.
Coil connection	Series
Insulating materials	Top revolving pole piece insulator (1 rqr). Bottom revolving pole piece insulator (1 rqr). Insulation wrapper 0.015 x 2 1/16 x 25 3/4 in. (inch) (1 rqr).
Dipping compounds	Varnish, Type AN, Grade CB, MIL–V–1137A.
Dipping and baking procedures.	First, dip 3 min (minutes), drain 10 min, bake 1 1/2 hr (hours). Second, dip 3 min, drain 10 min, bake 4 hr. All baking temperatures 320°F. (Fahrenheit).
Fungus treatment	Spray with MIL–V–173 varnish.

Stator:

Number of poles	4
Number of slots	54
Number of coils	54
Coil span	2 1/4 in.
Turns per coil	7
Wire size	No. 15 AWG
Type of wire	Copper magnet wire, heavy synthetic resin covered.
Insulating materials	Slot insulators, slot No. 11 x 4 core (36 rqr). Slot insulation 9 in. x 13 in. x 54 in. No. 33 slot (54 rqr). Core wedge, No. 38 slot, 4 3/16 in, long (54 rqr).
Dipping compounds	Varnish, Type AN, Grade CB, MIL–V–1137A.
Dipping and baking procedures.	First, preheat for 1 hr at 320°F., dip for 10 min, drain 10 min, bake 1 1/2 hr. Second, dip for 3 min, drain 10 min, bake 4 hr, spray with T–613 varnish, and bake 1/2 hr. All baking temperatures 320°F.
Fungus treatment	Spray with MIL–V–173 varnish.

e. Exciter Repair and Replacement Standards.

Exciter armature:

Number of coils	43
Turns per coil	6
Number of slots	43
Number of coils per slot.	1
Coil pitch	1 to 11
Commutator pitch	1 to 43
Number of commutator bars.	85
Wire size	No. 17 AWG
Type of wire	Round, dead, soft, copper magnet wire, heavy synthetic resin covered.
Type of winding	Wave
Connection	Clockwise 11 bars

Exciter shunt field:

Number of coils	4
Number of turns per coil.	1,400
Turns per layer	Random wound
Wire size	No. 21 AWG

Type of wire	Round copper magnet wire, plain, enamel covered.
Insulating materials	Field insulation (2 rqr). Field insulation, 3¾ in. lg (long) (2 rqr). Pole piece wrapping (4 rqr).
procedures.	One dip, drain 10 min. bake 1½ hr at 320°F.
Fungus treatment	Spray with MIL–V–173 varnish after baking.

f. Generator-Welder Repair and Replacement Standards.

Armature:

Number of coils	33
Number of coils per slot.	3
Number of slots	33
Turns per coil	1
Coil pitch	1 to 9
Commutator pitch	1 to 50
Number of commutator bars.	99
Type of winding	Wave
Insulating materials	Core winding insulating (2 rqr). Core slot wedge, 1½ in. lg (43 rqr). Cuffed core insulation (33 rqr). Fiber disk, 6 in. (2 rqr). Insulator flange, 4⁵⁄₁₆ in. (2 rqr.) Insulating tube (1 rqr). Supplementary mica segment (as rqr). Commutator insulator (1 rqr). Round commutator insulator (2 rqr). Slipspring separator (3 rqr).
Dipping compounds	Varnish, Type AN, Grade CB, MIL–V–1137A.
Dipping and baking procedures.	First, dip 3 min, drain 10 min, bake 1½ hr. Second, dip for 3 min, drain 10 min, bake 4 hr. All baking temperatures 320°F.
Fungus treatment	Spray with MIL–V–173 varnish after final baking.
Wire size	0.050 x ⅜ in.
Type of wire	Bare, copper magnet wire
Type of winding	Wave
Coil connection	Clockwise 12 bars
Insulating material	Between coils insulation (33 rqr). Mica ring (2 rqr). Mica segment (99 rqr). Core wedge, 1¾ in. lg (99 rqr). Generator disk, 8 in. (2 rqr).
Dipping compounds	Varnish, Type AN, Grade CB, MIL–V–1137A.
Dipping and baking procedures.	First, dip 3 min, drain 10 min, bake 1½ hr. Second, dip 3 min, drain 10 min, bake 4 hr. All baking temperatures 320°F.
Fungus treatment	Spray with MIL–V–173 varnish.

Interpoles or commutating poles:

Number of coils	4
Turns per coil	16
Turns per layer	1
Wire size	1⁄16 x ½ in.
Type of wire	Bare, soft-drawn strip copper (round edge).
Coil connection	Series
Insulating materials	Interpole coil separator (115 rqr), ½ in. cotton loom (15 in. rqr).
Dipping compounds	Varnish, Type AN, Grade CB, MIL–V–1137A.
Dipping and baking procedures	Dip in and out, drain 10 min, bake 1 hr at 320°F.
Fungus treatment	Spray with MIL–V–173 varnish.

Generator-welder compound fields:

Shunt section:

Turns per coil	1,300
Turns per layer	Random wound
wire size	No. 19 AWG
Type of wire	Round, copper magnet wire, plain enamel covered.

Series section:

Compounds No. 1 and No. 2:

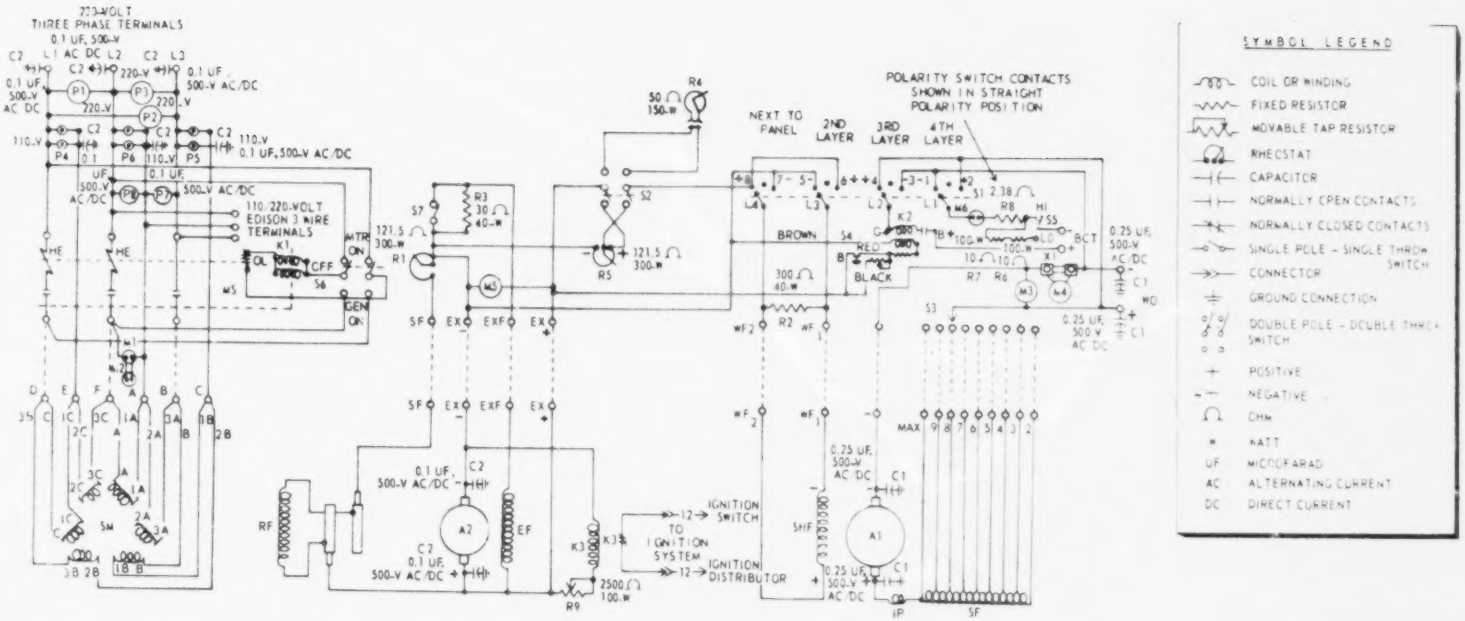
Turns per coil	5
Size of wire	1⁄16 x ⅜ in.
Type of wire	Bare, copper strip and double cotton covered.

Compounds No. 3 and No. 4:

Turns per coil	6
Wire size	3⁄32 x ⅜ in.
Type of wire	Double cotton-covered strip copper.

Compound No. 5:

Number of turns.	11
Wire size	3⁄32 x ¼ in.
Type of wire	Double cotton-covered strip copper.



DEVICE LEGEND

A1	WELDER ARMATURE	K3	OVERSPEED RELAY SWITCH	P5	110-VOLT RECEPTACLE CONNECTOR	RF	REVOLVING FIELD
A2	EXCITER ARMATURE	OL	OVERLOAD RESET SWITCH	P6	110-VOLT RECEPTACLE CONNECTOR	S1	WELDING POLARITY CONTROL SWITCH
HCT	BATTERY-CHARGING TERMINALS	M1	AC VOLTMETER	P7	110-VOLT BODY OUTLET RECEPTACLE CONNECTOR	S2	WELD-OFF-ENGINE START SWITCH
C1	CAPACITOR	M2	FREQUENCY METER	P8	110-VOLT BODY OUTLET RECEPTACLE CONNECTOR	S3	TEN-RANGE SWITCH
C2	CAPACITOR	M3	DC VOLTMETER	R1	MOTOR OPERATION RHEOSTAT	S4	REVERSE CURRENT RESET SWITCH
EF	EXCITER FIELDS	M4	DC AMMETER	R2	FIELD DISCHARGE RESISTOR, 300-OHM, 40-WATT	S5	BATTERY-CHARGING RATE SELECTOR SWITCH
HE	OVERLOAD SWITCH HEAT ELEMENT (45 AMPERE)	M5	HOUR METER	R3	60 CYCLE OPERATION RESISTOR, 30-OHM, 40-WATT	S6	MOTOR-GENERATOR SWITCH
IP	INTERPOLE WINDING	M6	BATTERY-CHARGING AMMETER	R4	WELDING RHEOSTAT	S7	50-60 CYCLE SELECTOR SWITCH
K1	NO VOLTAGE RELEASE COIL	MS	CIRCUIT BREAKER	R5	ENGINE STARTING CONTROL RHEOSTAT	SM	MOTOR-GENERATOR STATOR
K2	REVERSE CURRENT RELAY	P1	220-VOLT RECEPTACLE CONNECTOR	R6	BATTERY-CHARGING RESISTOR, 100-WATT, 10-OHM	SHF	SHUNT FIELD
		P2	220-VOLT RECEPTACLE CONNECTOR	R7	BATTERY-CHARGING RESISTOR, 100-WATT, 10-OHM	SF	WELDER SERIES FIELD
		P3	220-VOLT RECEPTACLE CONNECTOR	R8	BATTERY-CHARGING BALLAST RESISTOR, 2.38-OHM	WO	WELDING ELECTRODE TERMINALS
		P4	110-VOLT RECEPTACLE CONNECTOR	R9	OVERSPEED RESISTOR, 100-WATT, 2,500-OHM	X1	AMMETER SHUNT

MSC 474-200-15-1

Figure 1. Schematic wiring diagram, model SECM.

Compound No. 6:
Number of turns. 19
Wire size ... 1/16 x 1/4 in.
Type of wire ... Double cotton-covered strip copper.
Compounds No. 7 and No. 8:
Number of turns. 21
Series section—Continued
Compounds No. 7 and No. 8—Continued
Wire size ... 1/16 x 1/4 in.
Type of wire ... Double cotton-covered strip copper.
Dipping compounds ... Varnish, Type AN, Grade CB, MIL–V–1137A.
Dipping and baking
Number of coils. 2 assemblies
Coil connection ... Series
Insulating materials. 150A insulator (2 rqr). BW insulation (2 rqr). BW compound insulation (2 rqr). Pole piece wrapper (as rqr). 4½ in. pole piece toe insulation (as rqr). Flux ring insulation (as rqr). Class B interpole wrapper (as rqr). Lower compound lead insulation (1 rqr).
Dipping compound. Varnish, Type AN, Grade CB, MIL–V–1137A.
Dipping and baking. Dip in and out, drain 10 min, bake 1½ hr at 320°F.
Fungus treatment. Spray with MIL–V–173 varnish.

g. Schematic Wiring Diagrams.

(1) Refer to figure 1 for a schematic wiring diagram for moder SECM shop set.

(2) Refer to figure 2 for a schematic wiring diagram for model CMU–5 shop set.

Figure 2. Schematic wiring diagram, model CMU-5.

(Located in back of Manual)

h. Time Standards. Table I lists the number of man-hours required under normal conditions for various operations in the maintenance and repair of the generator set. The man-hours listed are not intended to be rigid standards. Under adverse conditions, the operations will take considerably longer; whereas, under ideal conditions with highly skilled mechanics, most of the operations can be accomplieshed in considerably less time.

Table I. Time Standards

	Hours
(1) *Lubrication and service.*	
03 FUEL SYSTEM	
0308 Engine Speed Governor	
Governor assembly (change oil)	0.5
17 BODY; CAB; HOOD; HULL	
1712 Special Purpose Bodies	
Body, assembly, special purpose (clean)	1.0
44 WELDING	
4406 Ventilating, Cooling System	
Filter, air (clean with air)	0.1

Table I. Time Standards—Continued

	Hours
(1) *Lubrication and service—Continued.*	
50 PNEUMATIC EQUIPMENT	
5008 Air Intake	
Pad, filter (clean)	0.1
(2) *Remove and replace.*	
03 FUEL SYSTEM	
0306 Tanks, Lines, Fittings	
Tube, filler	0.5
0308 Engine Speed Governor.	
Governor assembly, engine (includes adjustment)	1.1
Rod assembly, throttle	0.6
Adapter, governor drive	0.5
0308 Engine Speed Governor—Continued	
Pulley, adapter drive	0.2
Cable, flexible, governor drive	0.2
Belt "V" drive (includes removal and installation of guard, power divider and propeller shafts) includes adjustment)	4.6
0312 Accelerator, Throttle or choke controls	
Cable control, hand throttle	0.5
Bracket, throttle linkage	0.4
Spring, throttle return	0.1
06 ELECTRICAL SYSTEM	
0606 Engine Safety Controls	
Relay assembly, overspeed	1.2
0606 Engine Safety Controls—Continued	
Harness, wiring, overspeed relay to engine	0.2
Harness, wiring, overspeed relay to generator welder (includes removal and installation of panel guard and generator welder cover)	1.5
0608 Miscellaneous Items	
Switch, brake lock	0.1
Brake lock, electric (includes bleeding brake system)	1.0
Wiring harness, brake lock	0.6
Control, directional signal light, automotive	0.5
0609 Lights	
Lamp assembly, turn signal	0.5
Lamp, incandescent	0.2
Wiring harness, turn signal	1.0
0611 Horn	
Bracket, horn	0.1
0613 Hull or Chassis Wiring Harness	
Bracket, r ceptacle, trailer	1.0
08 POWER TRANSFER	
0802 Clutch and Clutch Controls	
Declutcher assembly, transfer case (includes removal and installation of propeller shaft) (includes adjustment)	3.2

Table I. Time Standards—Continued

	Hours
(2) *Remove and replace- Continued.*	
0803 Gearshift Controls	
Shift lever assembly, declutcher	0.5
Bracket, shift bar (includes adjustment)	0.6
0803 Gearshift Controls—Continued	
Shifter and shoe assembly, declutcher (includes removal and installation of declutcher shifter bracket assembly)	0.5
09 PROPELLER SHAFT	
0900 Propeller Shafts	
Universal joint and shaft assembly, slip (short) (includes removal and installation or companion flange, yoke and brakedrum hub)	2.0
Shaft, assembly, drive	1.0
Spider, universal joint (short shaft removed)	1.5
15 FRAME	
1501 Frame Assembly	
Extension, frame (includes raising and blocking at body)	9.0
Base, Generator (includes removal and installation or electrical leads and drive belts)	3.5
Member, frame extension and body support	5.0
17 BODY; CAB; HOOD; HULL	
1708 Straps	
Clips, tool (1 ea)	0.1
Loop, footmen (1 ea)	0.2
Spring, pail	0.1
Straps, mounting (1 ea)	0.1
1712 Special Purpose Bodies	
Body assembly (includes removal and installation of generator, control panel, power divider and throttle controls)	11.0
Door assembly	1.5
Tailgate assembly	1.5
Latch assembly	0.5
Receptacle, 110 v	0.2
Chain	0.2
Wiring, body (ea)	0.5
Panel assembly, roof (includes removal and installation of top rear door assembly)	1.0
Floor assembly (includes removal and installation of generator, welder belts, short propeller shaft, generator welder and power divider assembly)	20.0
Compartment assembly, body, right and left side	12.0
Shelf, flange (ea)	1.5
Panel assembly, head (body removed) (includes removal and installation of front channel)	4.5
20 POWER TAKEOFF	
2004 Power Takeoff Assembly	
Power takeoff assembly	3.0

	Hours
(2) *Remove and replace—Continued.*	
2004 Power Takeoff Assembly—Continued	
Box assembly, power takeoff support (power divider removed)	6.0
Linkage assembly, lower	1.5
Fort, shifter clutch	3.5
Bracket assembly, clutch operating	1.6
Linkage assembly, upper	1.0
Shaft, power takeff (power divider assembly removed)	2.5
Block, pillow (ea) (power divider assembly removed)	0.5
Bearing, ball, annular (power divider assembly removed)	3.0
Clutch assembly (power divider assembly removed) (includes adjustment)	2.1
Plate, drive (power divider assembly removed)	1.0
Plate, hub, back (power divider assembly removed)	2.0
Pulley, power takeoff (power divider assembly removed)	2.5
22 MISCELLANEOUS BODY, CHASSIS OR HULL, AND ACCESSORY ITEMS	
2202 Accessory Items	
Reflectors, indicating clearance	0.1
2210 Data Plates and Instruction Holders	
Plates, data and instruction	0.1
Plates, C.O.E.	0.1
40 ELECTRIC MOTORS	
4000 Motor Assembly	
Motor, electric, air compressor drive (includes removal and installation of compressor)	3.0
Plate, motor base (ea)	0.1
Bumper, rubber, motor base (ea)	0.1
4006 Starting and Protective Devices	
Switch, air compressor	0.2
42 ELECTRICAL EQUIPMENT	
4216 Miscellaneous Wiring, Fittings, Formed Cable Assemblies	
Cord w/plug, electric motor	0.5
Receptacle assembly, slave	0.5
Cable assembly, slave	0.2
44 WELDING	
4400 Arc Welders	
Generator, welder assembly (includes removal and installation of guard, power divider, and drive belts)	3.0
Eye, lifting	0.1

	Hours
(2) *Remove and replace—Continued.*	
4401 Rotor Assembly	
Armature assembly (generator removed) (includes removal and installation of pulley assembly and housing end)	3.0
Ring, electrical contact (armature removed)	4.5
4402 Stator Assembly	
Stator, generator (generator removed) (includes removal and installation of armature and brushes)	4.5
4403 Brush Holder Assembly	
Holder assembly (armature assembly removed)	1.5
Brush, electrical contact (includes seating brushes)	1.0
4404 Drive Components	
Belts, "V" (includes adjustment) (includes removal and installation of power divider assembly)	3.7
Pulley, generator drive (includes readjustment of drive belts)	1.5
4450 Frame Support, Housing, Carrier	
Housing, generator (ea) (generator removed) (includes removal and installation of armature, exciter field coils, brush rings and stator)	15.0
Cap, bearing	0.5
Wrappers, generator (ea)	0.1
Bearing, ball, annular (armature removed)	0.5
Washer, nonmetallic (cap, bearings removed)	0.1
4406 Ventilating, Cooling System	
Fan, generator cooling (armature removed) (includes removal and installation of ac, dc, armature and fields)	20.0
Guard assembly, fan	0.1
Filter, air, generator	0.1
4407 Control Panels, Housings, Cubicles	
Panel assembly, control (includes removal and installation of guard screen, wiring and leads)	1.5
Meters (ea) (panel removed)	0.5
4407 Control Panels, Housings, Cubicles—Continued	
Wiring harness (control panel removed)	9.0
4408 Connecting Devices	
Connector, receptacle, electrical	0.1
Board, terminal	0.5
Block, terminal	0.5
4409 Protective Devices, Electrical	
Fuse, cartridge	0.1

	Hours
(2) *Remove and replace—Continued.*	
4410 Switching, Timing and Speed Control	
Switch, rotary	
(control panel removed)	1.0
Relay assembly	
(control panel removed)	1.0
4410 Switching, Timing and Speed Control—Continued	
Switch, toggle	
(control panel removed)	0.5
4411 Resistor Components	
Resistors, fixed and adjustable	
(includes removal and installation of screen guard)	0.5
Resistors, variable	
(includes removal and installation of screen guard)	1.0
4414 Radio Interference Suppression	
Capacitor	
(includes removal and installation of guard screen, air filter and wrapper)	0.3
Strap, ground	0.3
47 Gages (Nonelectrical): Weighing and Measuring Devices	
4703 Time Meter	
Meter, time totalizing	
(control panel removed)	0.5
50 PNEUMATIC EQUIPMENT	
5000 Air Compressor Assembly	
Compressor, reciprocating, power drive	3.0
5001 Crankcase, Block, Cylinder Head	
Head, compressor	
(includes removal and installation of inlet valve, valve plate assembly and gasket)	1.0
Housing, compressor	
(includes removal and installation of head, piston, eccentric bearing cover, bearing and motor)	2.5
Handle, compressor lifting	0.1
5002 Crankshaft	
Eccentric, piston, driving	
(includes removal and installation of head, housing, piston, bearing, outboard bearing and bearing cover)	2.5
Bearing, ball, annular	
5004 Pistons, Connecting Rods, and Rotors	
Piston, compressor	
(includes removal and installation of head, housing, eccentric, outboard bearing and cover bearing)	2.5
Seal, plain	
(includes removal and installation of cylinder head)	0.5
Bearing, sleeve, piston to eccentric	
(includes removal and installation of head, housing, piston, eccentric, crankshaft, outboard bearing and cover bearing)	2.5
5005 Valves, Camshaft and Timing Mechanism	
Plate assembly, valve	
(includes removal and installation of head and air seal)	1.0

Table I. Time Standards—Continued

	Hours
(2) *Remove and replace—Continued.*	
5005 Valves, Camshaft and Timing Mechanism—Continued	
Valve, inlet (head removed)	0.1
5008 Air Intake	
Pad, filter	0.1
76 FIRE FIGHTING EQUIPMENT	
7603 Fire Extinguisher	
Extinguisher, fire	0.1

CHAPTER 2

GENERAL MAINTENANCE INSTRUCTIONS

Section I. SPECIAL TOOLS AND EQUIPMENT

5. Special Tools and Equipment

No special tools or equipment are required for the maintenance of this shop set.

6. Field and Depot Maintenance Repair Parts

Field and depot maintenance repair parts are listed and illustrated in TM 5-4940-200-35P.

7. Specially Designed Tools and Equipment

No specially designed tools or equipment are required for the maintenance of this shop set.

Section II. TROUBLESHOOTING

8. General

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the shop set and its components. Each trouble symptom stated is followed by a list of probable causes of the trouble. The possible remedy recommended is described opposite the probable cause.

9. Engine Speed Fluctuates

Probable cause	*Possible remedy*
Governor defective	Repair or replace the governor (par. 26).
Governor adapter drive defective.	Repair or replace the governor adapter drive (par. 27).

10. Generator-Welder Will Not Start or Come Up To Speed

Probable cause	*Possible remedy*
Power takeoff damaged	Repair or replace the power takeoff (par. 38).

11. Generator-Welder Does Not Deliver Output

Probable cause	*Possible remedy*
Cycle selector switch defective.	Replace cycle selector switch (par. 45).
Field rheostat defective	Replace a defective rheostat (par. 46).
Ten-range switch defective.	Repair or replace the ten-range switch (par. 46).
Field circuit open	Inspect the field rheostat and connections to rheostat. Repair or replace a defective rheostat (par. 46).
Generator-welder defective.	Test and repair generator-welder (pars. 42 and 43).
Circuit breaker defective	Repair or replace a defective circuit breaker (par. 47).
Welding polarity control switch defective.	Replace a defective welding polarity control switch (par. 45).

12. Circuit Breaker Lacks Current When On

Probable cause	*Possible remedy*
Circuit breaker defective	Repair or replace a defective circuit breaker (par. 47).

13. Circuit Breaker Will Not Stay Closed

Probable cause	*Possible remedy*
Overload trip assembly defective.	Replace overload trip assembly (par. 47).
Circuit breaker defective	Replace circuit breaker (par. 47).

14. Polarity Fails To Reverse

Probable cause	*Possible remedy*
Polarity control switch jumper defective.	Replace jumper wires as necessary (par. 45).
Polarity control switch defective.	Replace polarity control switch (par. 45).

15. Direct Current Ammeter or Voltmeter Fails To Register

Probable cause	*Possible remedy*
Direct current ammeter or voltmeter defective.	Replace direct current ammeter or voltmeter (par. 45).
Ammeter shunt defective	Replace ammeter shunt (par. 45). Repair or replace electrical lead.

16. Alternating Current Voltmeter Fails To Register

Probable cause	*Possible remedy*
Alternating current voltmeter defective.	Replace alternating current voltmeter (par. 45).

17. Battery-Charging Ammeter Fails To Register

Probable cause	*Possible remedy*
Battery-charging resistor defective.	Inspect the battery-charging resistors. Replace defective resistors (par. 49).
Battery-charging ammeter defective.	Replace battery-charging ammeter (par. 45).

18. Frequency Meter Fails To Register

Probable cause	*Possible remedy*
Frequency meter defective	Replace the frequency meter (par. 45).

19. Welding Arc Breaks Down and Cannot Be Maintained

Probable cause	*Possible remedy*
Commutator rough or worn.	Reface the commutator (par. 43).

20. Power Takeoff Noisy

Probable cause	*Possible remedy*
Bearings defective	Replace the bearings (par. 38).
One or more gears chipped or broken.	Replace defective gears (par. 38).

Section III. REMOVAL AND INSTALLATION OF MAJOR COMPONENTS

21. Power Takeoff

a. Removal.

(1) Refer to TM 5–4940–200–12 and remove the power takeoff guard.

(2) Refer to TM 5–4940–200–12 and adjust the generator-welder drive belts to full loose. Remove the belts from the generator-welder pulley.

(3) Refer to TM 5–4940–200–12 and remove the governor adapter drive V-belt from the governor adapter drive pulley.

(4) Refer to TM 5–4940–200–12 and disconnect the lower linkage from the clutch linkage bracket assembly.

(5) Refer to paragraph 36 and remove the power takeoff universal joint and shaft assembly.

(6) Refer to figure 3 and remove the power takeoff.

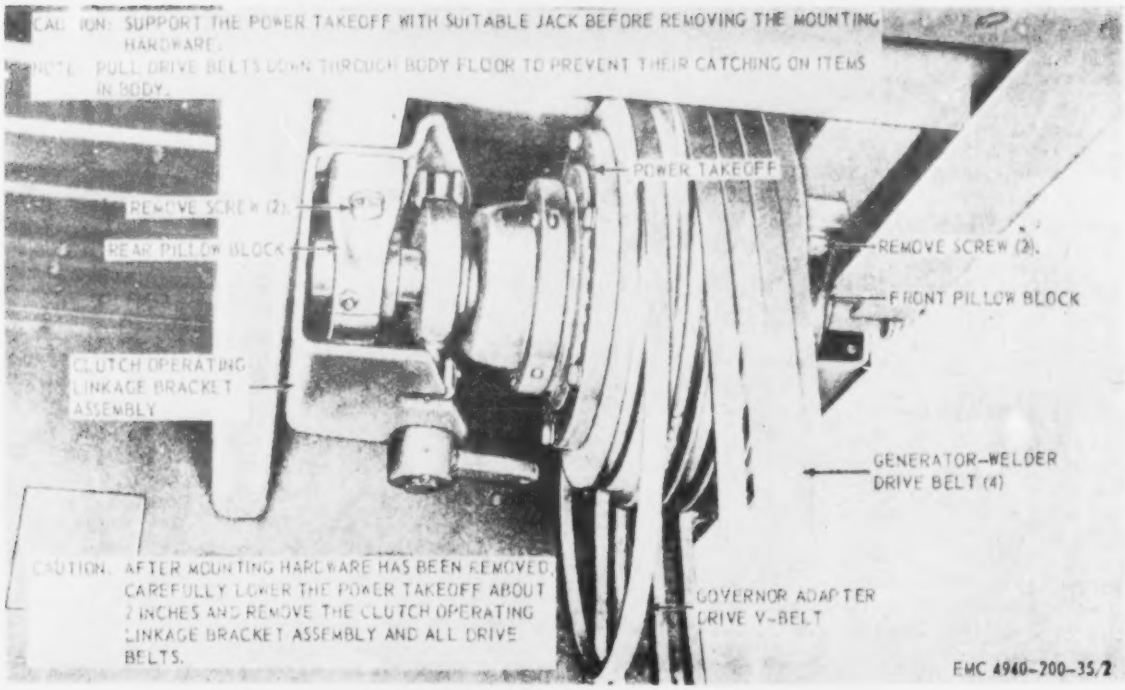

CAUTION: SUPPORT THE POWER TAKEOFF WITH SUITABLE JACK BEFORE REMOVING THE MOUNTING HARDWARE.
NOTE: PULL DRIVE BELTS DOWN THROUGH BODY FLOOR TO PREVENT THEIR CATCHING ON ITEMS IN BODY.
POWER TAKEOFF
REMOVE SCREW (2).
REAR PILLOW BLOCK
REMOVE SCREW (2).
FRONT PILLOW BLOCK
CLUTCH OPERATING LINKAGE BRACKET ASSEMBLY
GENERATOR-WELDER DRIVE BELT (4)
CAUTION: AFTER MOUNTING HARDWARE HAS BEEN REMOVED, CAREFULLY LOWER THE POWER TAKEOFF ABOUT 2 INCHES AND REMOVE THE CLUTCH OPERATING LINKAGE BRACKET ASSEMBLY AND ALL DRIVE BELTS.
GOVERNOR ADAPTER DRIVE V-BELT
FMC 4940-200-35/2

Figure 3. Power takeoff, removal and installation.

b. Installation.

(1) Refer to figure 3 and install the power takeoff.

Note: Support the power takeoff with a suitable jack and be sure to reinstall the clutch operating linkage bracket assembly before installing the mounting hardware.

(2) Refer to paragraph 36 and install the power takeoff universal joint and shaft assembly.

(3) Refer to TM 5–4940–200–12 and connect the lower linkage to the clutch operating linkage bracket assembly.

(4) Refer to TM 5–4940–200–12 and install the governor adapter drive V-belt on the governor adapter drive pulley.

(5) Install the generator-welder drive belts on the generator-welder pulley. Refer to TM 5–4940–200–12 and adjust the generator-welder drive belts.

(6) Refer to TM 5–4940–200–12 and install the power takeoff guard.

22. Generator-Welder and Generator-Welder Base

a. Removal.

(1) Refer to TM 5–4940–200–12 and remove the lifting eye and generator-welder top cover. On model CMU–5 shop sets, remove the engine overspeed relay resistor and switches from the generator-welder.

(2) Refer to figure 4 and remove the model SECM generator-welder and generator-welder base. Remove model CMU–5 generator-welder and generator-welder base in a similar manner.

b. Installation.

(1) Refer to figure 4 and install the model SECM generator-welder and genera-

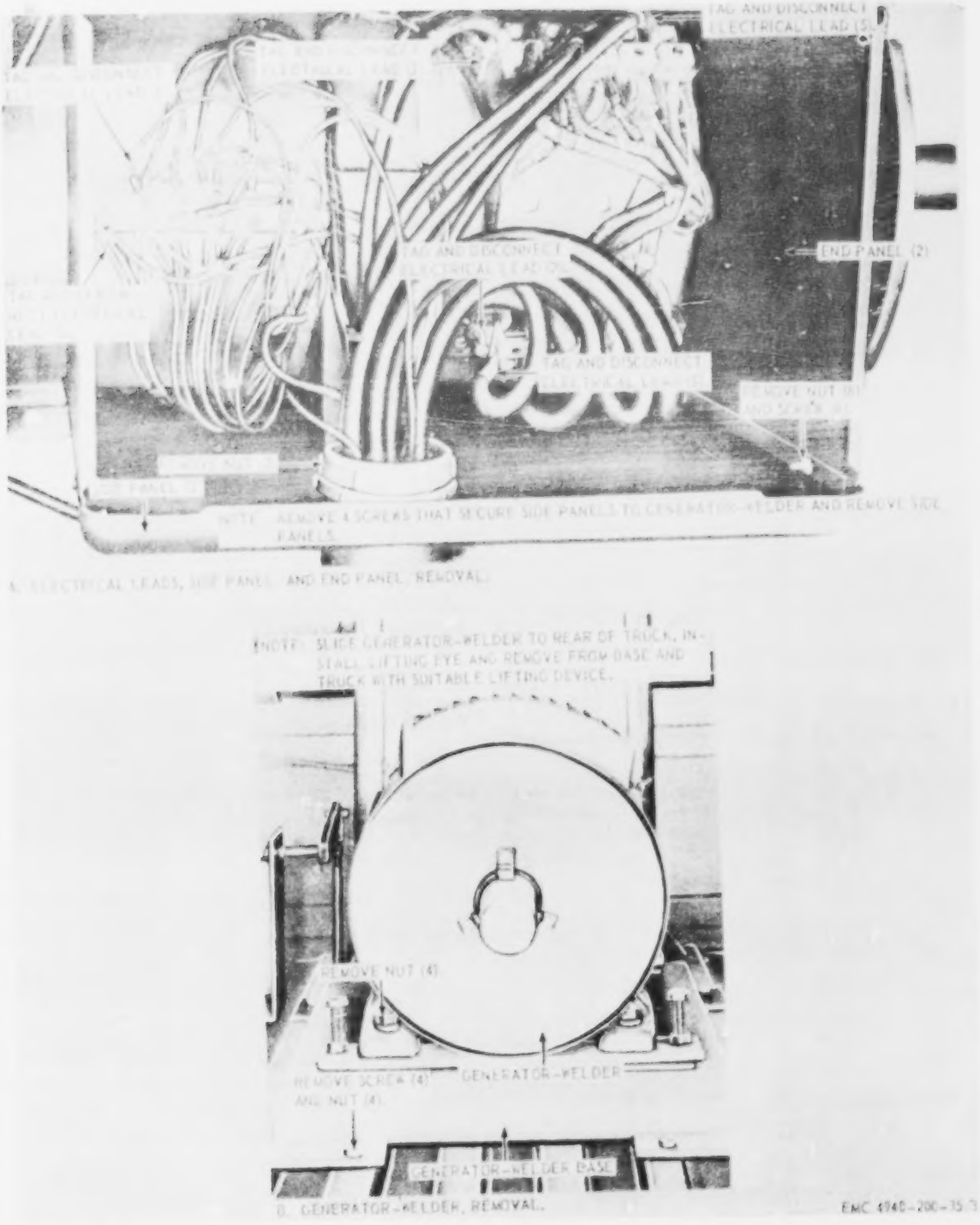

TAG AND DISCONNECT ELECTRICAL LEAD (5)
END PANEL (2)
TAG AND DISCONNECT
REMOVE NUT (8) AND SCREW (8)
NOTE: REMOVE 4 SCREWS THAT SECURE SIDE PANELS TO GENERATOR-WELDER AND REMOVE SIDE PANELS.
A. ELECTRICAL LEADS, SIDE PANEL, AND END PANEL, REMOVAL.
NOTE: SLIDE GENERATOR-WELDER TO REAR OF TRUCK, INSTALL LIFTING EYE AND REMOVE FROM BASE AND TRUCK WITH SUITABLE LIFTING DEVICE.
REMOVE NUT (4)
REMOVE SCREW (4) AND NUT (4)
GENERATOR-WELDER
GENERATOR-WELDER BASE
B. GENERATOR-WELDER, REMOVAL.
EMC 4940-200-15/3

Figure 4. Generator-welder and generator-welder base, model SECM, removal and installation.

tor-welder base. Install model CMU–5 generator-welder and generator-welder base in a similar manner.

(2) Refer to TM 5–4940–200–12 and install the lifting eye and the generator-welder to cover. On model CMU–5 shop sets, install the engine overspeed relay resistor and switches to the generator-welder.

23. Control Panel

a. Removal.

(1) Refer to TM 5–4940–200–12 and remove the control panel screen.

(2) Refer to figure 5 and remove the control panel, model SECM.

(3) Refer to figure 5 and remove the control panel, model CMU–5, in a similar manner.

Note: Remove the two screws that secure the reverse current relay mounting bracket to the control panel and hold the reverse current relay while removing the panel.

b. Installation.

(1) Refer to figure 5 and install the control panel, model SECM.

(2) Refer to figure 5 and install the control, model CMU–5, in a similar manner.

(3) Refer to TM 5–4940–200–12 and install the control panel screen.

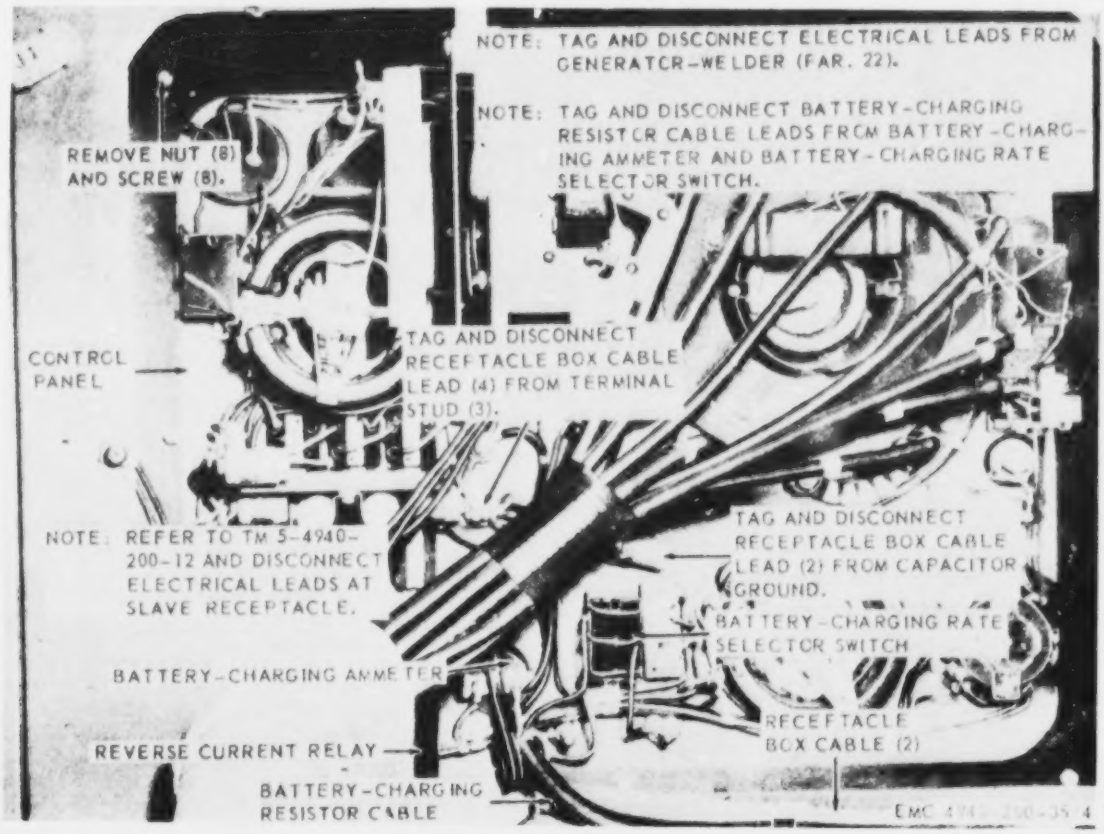
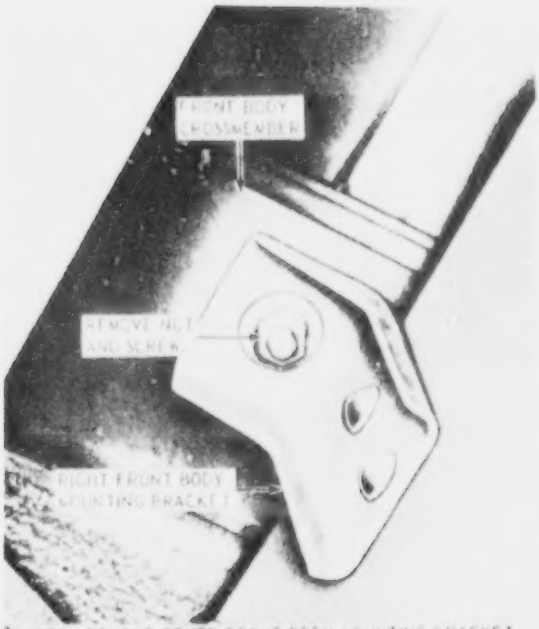
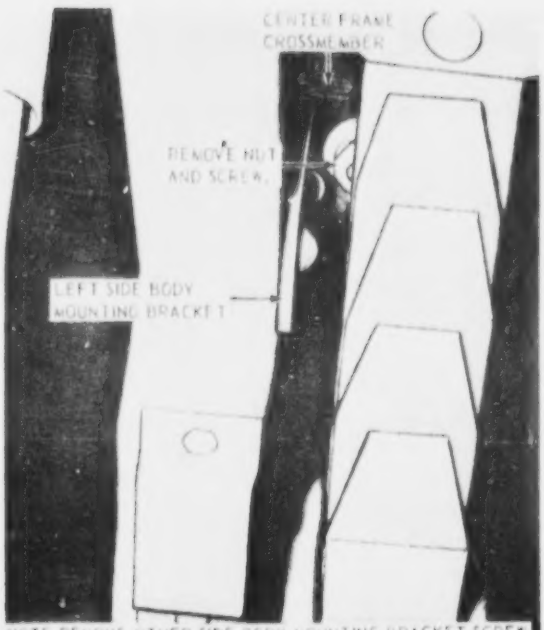

NOTE: TAG AND DISCONNECT ELECTRICAL LEADS FROM GENERATOR-WELDER (PAR. 22).
NOTE: TAG AND DISCONNECT BATTERY-CHARGING RESISTOR CABLE LEADS FROM BATTERY-CHARGING AMMETER AND BATTERY-CHARGING RATE SELECTOR SWITCH.
REMOVE NUT (8) AND SCREW (8).
CONTROL PANEL
TAG AND DISCONNECT RECEPTACLE BOX CABLE LEAD (4) FROM TERMINAL STUD (3).
NOTE: REFER TO TM 5-4940-200-12 AND DISCONNECT ELECTRICAL LEADS AT SLAVE RECEPTACLE.
TAG AND DISCONNECT RECEPTACLE BOX CABLE LEAD (2) FROM CAPACITOR GROUND.
BATTERY-CHARGING RATE SELECTOR SWITCH
BATTERY-CHARGING AMMETER
RECEPTACLE BOX CABLE (2)
REVERSE CURRENT RELAY
BATTERY-CHARGING RESISTOR CABLE

Figure 5. Control panel, model SECM, removal and installation.



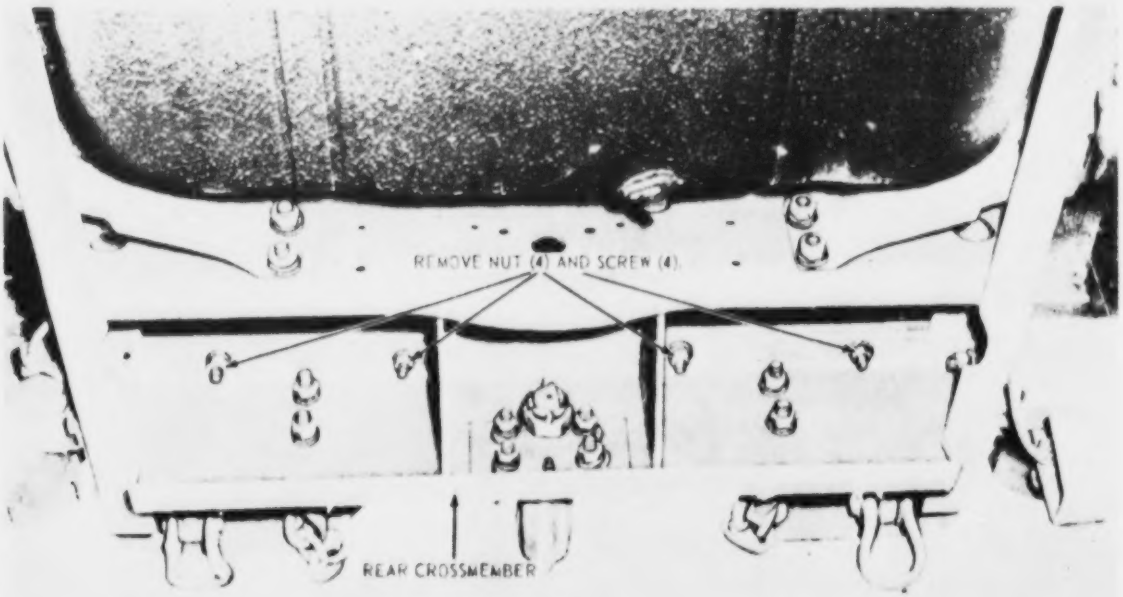
NOTE. REMOVE OTHER FRONT BODY MOUNTING BRACKET SCREW AND NUT IN A SIMILAR MANNER.

A. FRONT BODY MOUNTING BRACKET SCREWS, REMOVAL.



NOTE. REMOVE OTHER SIDE BODY MOUNTING BRACKET SCREW AND NUT IN A SIMILAR MANNER.

B. SIDE BODY MOUNTING BRACKET SCREWS, REMOVAL.



C. REAR BODY MOUNTING SCREWS, REMOVAL.

EMC 4940-200-35/5 ①

References A through C

Figure 6. Shop set body, removal and installation.

24. Shop Set Body

a. Removal.

(1) Remove all tools and accessories from the compartments. Store the various components in containers marked to identify the locations in order to facilitate replacement in the proper compartments.

(2) Refer to paragraph 36 and remove the power takeoff universal joint and shaft assembly.

(3) Refer to TM 5–4940–200–12 and disconnect the governor drive cable at the governor adapter drive.

(4) Refer to TM 5–4940–200–12 and disconnect the overspeed relay wiring harness from the engine ignition switch and free the relay wiring harness from the truck.

(5) Refer to figure 6 and remove the shop set body from the carrier.

Caution: **Be sure to provide suitable support for the shop set body after removal from the carrier; otherwise, damage to the power takeoff guard or power takeoff may result.**

b. Installation.

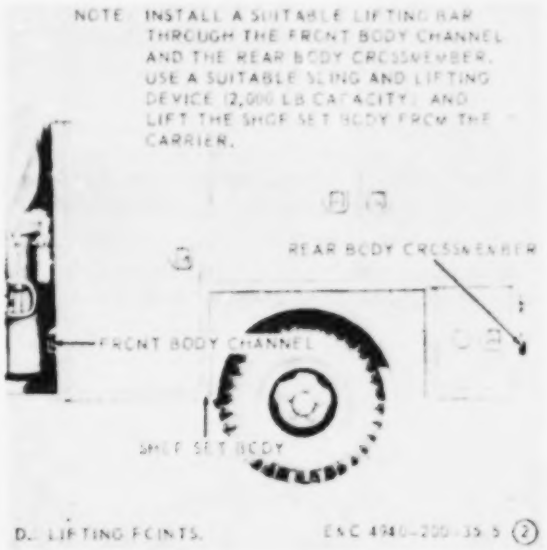
(1) Refer to figure 6 and install the shop set body.

(2) Refer to TM 5–4940–200–12 and reconnect the overspeed relay wiring harness to the engine ignition switch.

(3) Refer to TM 5–4940–200–12 and reconnect the governor drive cable.

(4) Refer to paragraph 36 and install the power takeoff universal joint and shaft assembly.

(5) Install all tools and accessories in the compartment from which they were removed. (Refer to TM 5–4940–200–12 for location.)


NOTE: INSTALL A SUITABLE LIFTING BAR THROUGH THE FRONT BODY CHANNEL AND THE REAR BODY CROSSMEMBER. USE A SUITABLE SLING AND LIFTING DEVICE (2,000 LB CAPACITY) AND LIFT THE SHOP SET BODY FROM THE CARRIER.
REAR BODY CROSSMEMBER
FRONT BODY CHANNEL
SHOP SET BODY
D. LIFTING POINTS.
ENC 4940-200-35 5 (2)

Reference D

Figure 6—Continued.

CHAPTER 3

SHOP SET MAINTENANCE INSTRUCTIONS

Section I. ENGINE SPEED GOVERNOR AND GOVERNOR ADAPTER DRIVE

25. General

The centrifugal flyweight-type governor is bracket-mounted on the cylinder head of the truck engine. The governor is driven by the generator-welder power takeoff by means of a V-belt, governor adapter drive, and flexible cable. The governor maintains constant engine speed under varying load conditions and prevents the engine from exceeding the revolutions per minute rate for which it is adjusted. When the engine speed decreases as a heavy load is applied, the governor spring overcomes the centrifugal force of the flyweights and moves the throttle lever to open the butterfly valve in the carburetor to increase the engine speed. The limiting action of the governor returns with increased engine speed.

26. Engine Speed Governor

a. Removal. Refer to TM 5–4940–200–12 and remove the engine speed governor.

b. Disassembly. Refer to figure 7 and disassemble the engine speed governor.

c. Cleaning, Inspection, and Repair.

(1) Clean all metal parts, except ball bearings, in an approved cleaning solvent and dry thoroughly.

(2) Place the ball bearings in an approved cleaning solvent until all grease and sludge is loosened. After cleaning, allow bearing to drain dry.

(3) Dip the bearings in clean light oil, rotate a few times, and drain excess oil.

(4) Inspect the bearings for rusted balls or races, fractured races, and galled or scored surfaces. Replace a defective bearing.

(5) Inspect all the components for cracks, breaks, or other defects. Replace all defective parts.

d. Reassembly. Refer to figure 7 and reassemble the engine speed governor.

e. Installation and Adjustment. Refer to TM 5–4940–200–12 and install and adjust the engine speed governor.

27. Governor Adapter Drive

a. Removal. Refer to TM 5–4940–200–12 and remove the governor adapter drive and drive pulley.

b. Disassembly. Refer to figure 8 and disassemble the governor adapter drive.

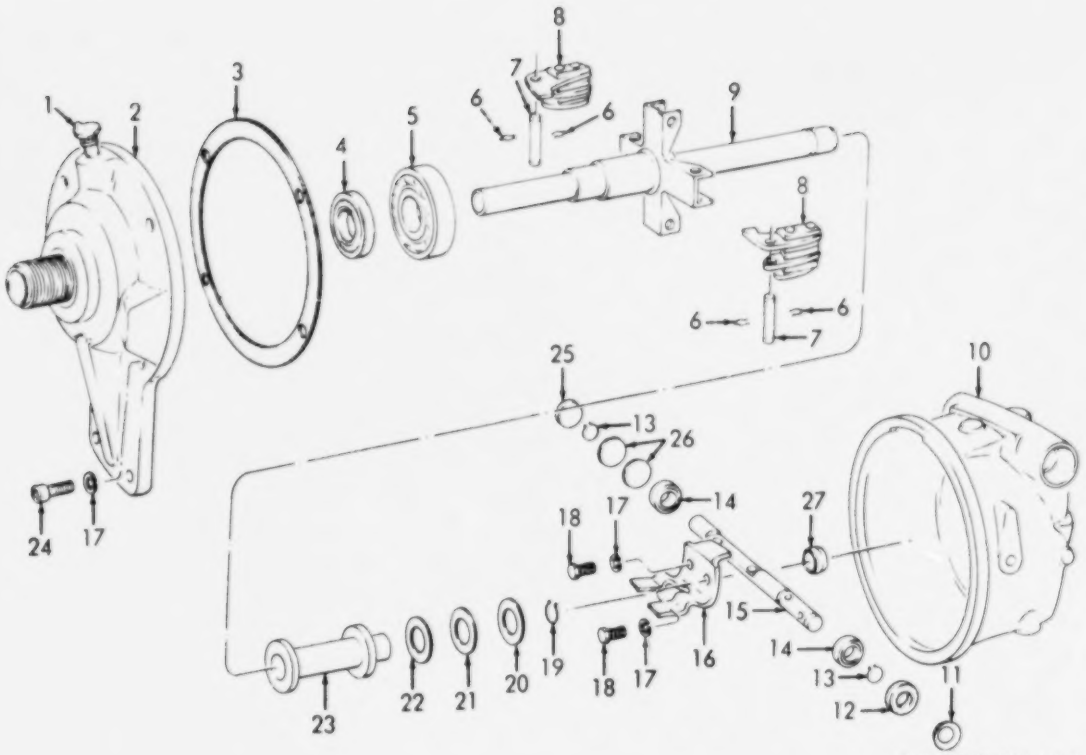
c. Cleaning, Inspection, and Repair.

(1) Clean all metal parts, except ball bearings, in an approved cleaning solvent and dry thoroughly.

(2) Clean and inspect the ball bearings as instructed in paragraph 26.

(3) Inspect the governor drive bracket for cracks and breaks.

(4) Inspect the drive shaft for excessive wear, burs, and nicks. File smooth all minor burs and nicks.



1 Lubricating oilcup
2 Governor flange
3 Gasket
4 Oil seal
5 Ball bearing
6 Hairpin clip (4 rqr)
7 Headless grooved pin (2 rqr)
8 Governor control weight assembly (2 rqr)
9 Shaft and spider
10 Governor housing
11 Packing retainer
12 Oil seal
13 Retaining ring (2 rqr)
14 Ball bearing (2 rqr)
15 Rocker arm shaft
16 Rocker shaft yoke
17 Washer, lock, No. 10 (rqr)
18 Bolt, machine, hex-hd, No. 10-32 x 7/16 in. (2 rqr)
19 Retaining ring
20 Washer, thrust, ½ in. id, 21/32 in. od, 3/32 in. thk (2 rqr)
21 Thrust bearing
22 Washer, thrust, ½ in. id, 21/32 in. od, 1/32 in. thk
23 Thrust sleeve
24 Screw, machine, No. 10-24 x ¾ in. (4 rqr)
25 Expansion plug
26 Spacer (spec) (2 rqr)
27 Bushing

Figure 7. Engine speed governor, disassembly and reassembly.

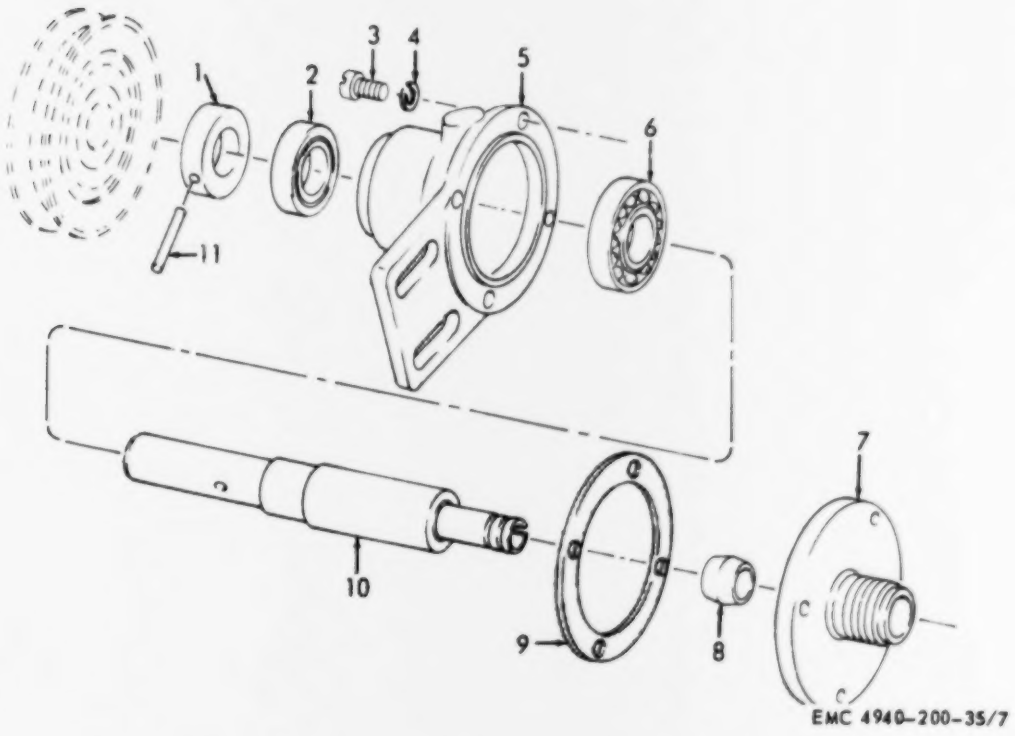
(5) Inspect the drive cover for breaks and cracks.

(6) Inspect all hardware for worn or damaged threads.

(7) Replace all defective parts.

d. Reassembly. Refer to figure 8 and reassemble the governor adapter drive.

e. Installation. Refer to TM 5–4940–200–12 and install the governor adapter and drive pulley.



1 Shaft collar, ⅝ id, 1⅜ od, ¼ in. thk
2 Plain encased oil seal
3 Screw, machine, No. 10–24 x ⅝ in. (4 rqr)
4 Washer, lock, No. 10 (4 rqr)
5 Governor drive bracket
6 Ball bearing
7 Drive cover
8 Sleeve bushing
9 Gasket
10 Drive shaft
11 Pin, headless, ⅛ x 1¼ in.

Figure 8. Governor adapter drive, disassembly and reassembly.

Section II. ENGINE OVERSPEED RELAY

28. General

The engine overspeed relay is a safety device that is controlled by the speed of the generator-welder armature. The exciter voltage is increased as the speed of the armature is increased. On model SECM shop sets the relay solenoid is adjusted so that excessive exciter-voltage will cause it to actuate. The solenoid plunger trips a microswitch that is connected in series with the engine ignition switch. When the microswitch is tripped, the engine ignition circuit is interrupted, causing the engine to stop. On model CMU–5 shop sets overspeed is sensed by the resistor which trips the relay switches, causing the engine to stop.

29. Engine Overspeed Relay, Model SECM

a. Removal. Components of the overspeed relay can be removed while the box is in place; however, for convenience in component removal, refer to TM 5–4940–200–12 to remove the engine overspeed relay from the shop set body.

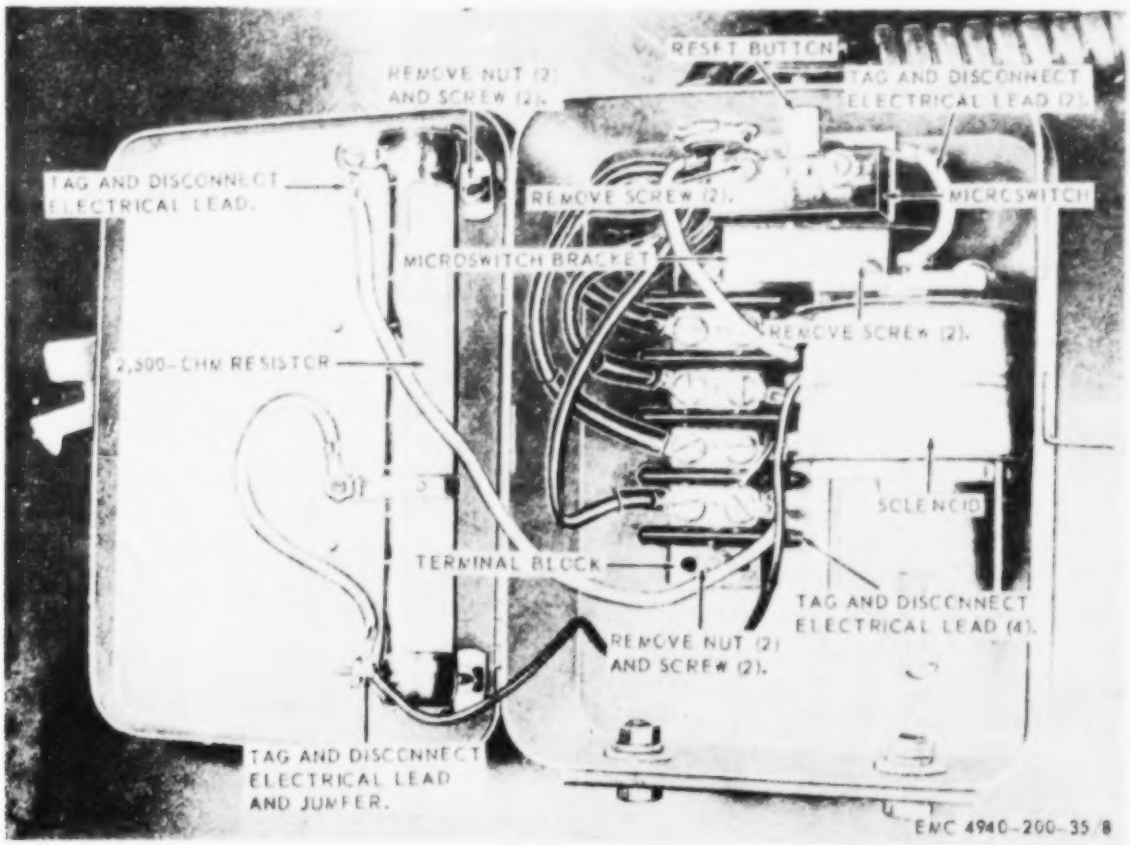


Figure 9. Engine overspeed relay resistor, microswitch, solenoid, and terminal block, model SECM, removal and installation.

b. Removal of Components. Refer to figure 9 and remove the engine overspeed relay resistor, microswitch, solenoid, and terminal block.

c. Cleaning, Inspection, and Testing.

(1) Wash nonelectrical metal parts in an approved cleaning solvent and dry thoroughly.

(2) Inspect the microswitch for cracks and faulty operation. Test the continuity of the switch by placing the leads of a multimeter at the switch terminal C and terminal NC. When the reset button is depressed, continuity should not be indicated. When the circuit is open, continuity should not be indicated. Replace a defective microswitch.

(3) Inspect the insulation plate, located between the microswitch and switch bracket, for cracks or breaks.

(4) Inspect the resistor for cracked or broken insulation. Test the resistor with a multimeter. Resistance should be 2,500 ohms ± 10 percent. Replace a defective resistor.

(5) Inspect the solenoid for visible damage or defects. Connect the solenoid, momentarily, to a 40-volt direct current power source. Solenoid should operate. Replace a defective solenoid.

(6) Inspect the terminal blocks for cracks or breaks, loose or damaged terminal plates, and damaged terminal screws.

(7) Inspect all electrical leads for damaged terminal lugs and cracked or damaged insulation.

(8) Inspect the microswitch bracket for cracks or breaks.

(9) Replace all defective parts.

(10) Inspect the overspeed relay box for breaks, cracks, or other damage.

d. Installation of Components. Refer to figure 9 and install the engine overspeed relay resistor, microswitch, solenoid, and terminal block.

e. Installation. If the engine overspeed relay is removed from the shop set body, refer to TM 5-4940-200-12 and install it.

f. Adjustment. Refer to figure 10 and adjust the engine overspeed relay.

30. Engine Overspeed Relay, Model CMU-5

a. Removal. Refer to TM 5-4940-200-12 and remove the engine overspeed relay resistor and switches.

b. Cleaning, Inspection, and Testing.

(1) Wash nonelectrical metal parts in an approved cleaning solvent and dry thoroughly.

(2) Inspect the resistor for cracked and broken insulation. Test the resistor with a multimeter. Resistance should be 10,000 ohms ± 10 percent. Replace a defective resistor.

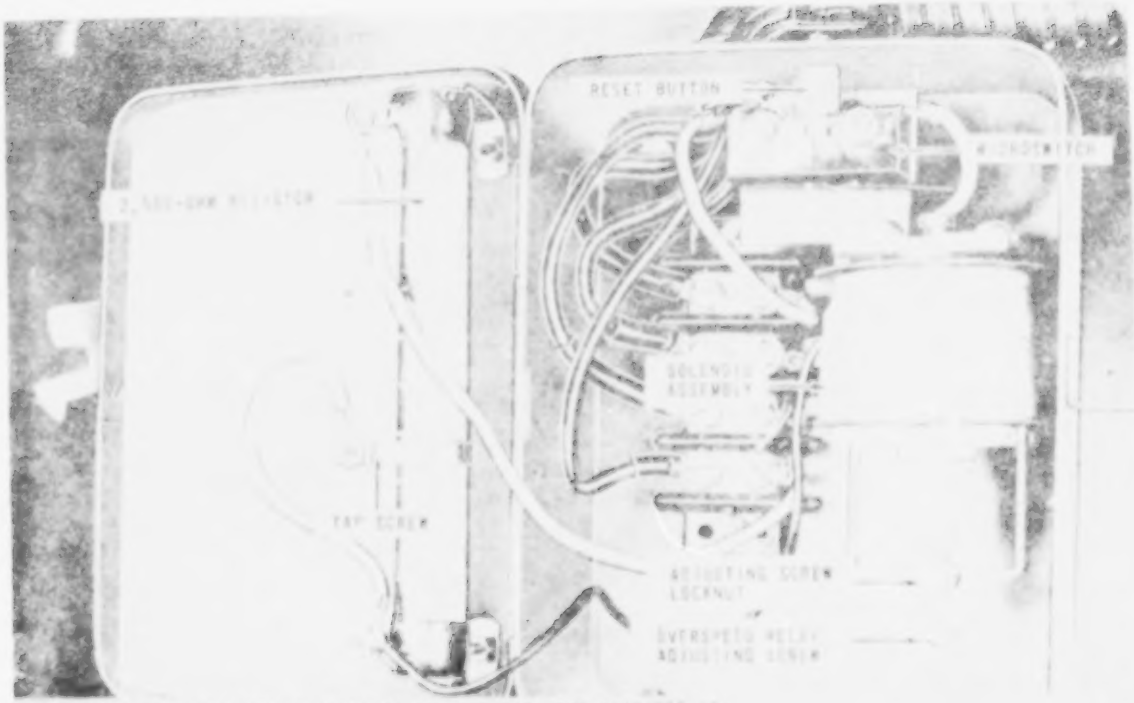
(3) Inspect the auxiliary relay switch for cracks, breaks, or other damage. Test the switch coil with a multimeter. Resistance should be 500 ohms ± 10 per cent. Replace a defective auxiliary relay switch.

(4) Inspect the overspeed relay switch for cracks, breaks, or other damage. Test the switch coil with a multimeter. Resistance should be 6,000 ohms ± 10 percent. Replace a defective overspeed relay switch.

(5) Inspect all electrical leads for damaged terminal lugs and cracked or damaged insulation. Replace all defective parts.

c. Installation. Refer to TM 5-4940-200-12 and install the engine overspeed relay resistor and switches.

d. Adjustment. Refer to figure 11 and adjust the engine overspeed relay.



STEP 1. DISCONNECT ENGINE GOVERNOR DRIVE CABLE (TM5-4040-200-12).

STEP 2. REMOVE END COVER AND CAP FROM REAR OF GENERATOR-WELDER (TM5-4040-200-12).

STEP 3. LOOSEN TAP SCREW AND POSITION SLIDE OF 2,500-OHM RESISTOR TO GIVE RESISTANCE OF 1,600 OHMS ACROSS RESISTOR. TIGHTEN TAP SCREW.

STEP 4. LOOSEN ADJUSTING SCREW LOCKNUT AND SET OVERSPEED RELAY ADJUSTING SCREW SIX AND ONE-HALF TURNS UP FROM ITS LOWEST POSITION (BASIC SETTING).

STEP 5. START ENGINE AND GENERATOR - WELDER. POSITION THE CYCLE SELECTOR SWITCH FOR 60 CYCLE OPERATION (TM5-4040-200-12).

STEP 6. HOLD TACHOMETER PICKUP AGAINST EXPOSED ARMATURE SHAFT OF GENERATOR-WELDER. INCREASE ENGINE SPEED MOMENTARILY UNTIL A TACHOMETER READING OF 1,950-1,980 RPM IS OBTAINED. IF OVERSPEED RELAY FAILS TO STOP ENGINE, PROCEED WITH STEP 7.

STEP 7. RAISE ADJUSTING SCREW ONE TURN AND RETEST AS IN STEP 5. REPEAT UNTIL OVERSPEED RELAY OPERATES AT AN ARMATURE SPEED OF 1,950-1,980 RPM.

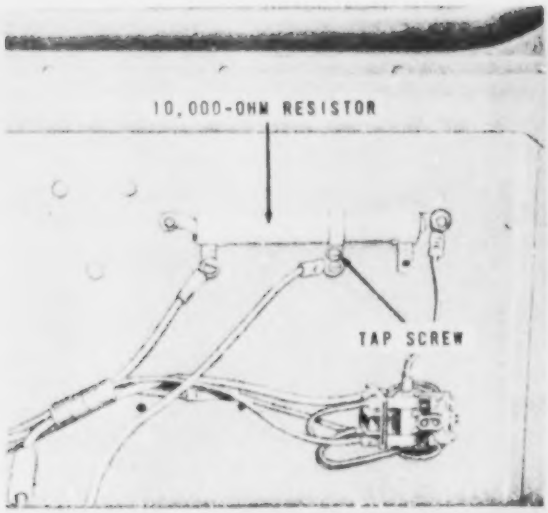
NOTE: IF OVERSPEED RELAY STOPS ENGINE BEFORE A TACHOMETER READING OF 1,950-1,980 RPM IS OBTAINED, LOWER THE ADJUSTING SCREW ONE TURN AND RETEST. REPEAT UNTIL TACHOMETER READING OF 1,950-1,980 IS OBTAINED.

STEP 8. TIGHTEN ADJUSTING SCREW LOCKNUT.

STEP 9. INSTALL END COVER AND CAP ON GENERATOR-WELDER AND RECONNECT THE ENGINE GOVERNOR DRIVE CABLE (TM5-4040-200-12).

MSC 4040-200-35/10

Figure 10. Engine overspeed relay, model SECM, adjustment.



STEP 1. DISCONNECT ENGINE GOVERNOR DRIVE CABLE (TM5-4940-200-12).

STEP 2. REMOVE TOP COVER AND REAR END COVER FROM GENERATOR-WELDER (TM5-4940-200-12).

STEP 3. LOOSEN TAP SCREW AND POSITION SLIDE OF 10,000-OHM RESISTOR TO GIVE RESISTANCE OF APPROXIMATELY 8,300 OHMS ACROSS RESISTOR. TIGHTEN TAP SCREW.

STEP 4. START ENGINE AND GENERATOR-WELDER. POSITION THE CYCLE SELECTOR SWITCH FOR 60 CYCLE OPERATION (TM5-4940-200-12).

STEP 5. HOLD TACHOMETER PICKUP AGAINST EXPOSED ARMATURE SHAFT OF GENERATOR-WELDER. MOMENTAIRLY INCREASE ENGINE SPEED UNTIL A TACHOMETER READING OF 1,950-1,980 RPM IS OBTAINED. IF OVERSPEED RELAY FAILS TO STOP ENGINE, PROCEED WITH STEP 6.

STEP 6. STOP GENERATOR-WELDER AND ENGINE (TM5-4940-200-12). DECREASE RESISTANCE ACROSS 10,000-OHM RESISTOR AND REPEAT STEPS 4 AND 5 UNTIL OVERSPEED RELAY STOPS ENGINE BETWEEN 1,950-1,980 RPM.

STEP 7. IF OVERSPEED RELAY STOPS ENGINE BEFORE A TACHOMETER READING OF 1,950-1,980 RPM IS OBTAINED, INCREASE RESISTANCE ACROSS 10,000-OHM RESISTOR AND REPEAT STEPS 4 AND 5 UNTIL OVERSPEED RELAY STOPS ENGINE BETWEEN 1,950-1,980 RPM.

STEP 8. INSTALL TOP COVER AND REAR END COVER TO THE GENERATOR-WELDER AND RECONNECT THE ENGINE GOVERNOR DRIVE CABLE (TM5-4940-200-12).

MSC 4940-200-35/11

Figure 11. Engine overspeed relay, model CMU–5, adjustment.

Section III. ELECTRIC BRAKE LOCK

31. General

The electric brake lock is installed in the hydraulic brake system to lock the rear wheels of the truck. It is mounted on the inside of the right frame member near the center body bracket and is actuated by an electrical switch located on the dash of the truck. The brake lock maintains enough pressure on the hydraulic brake system of the rear wheels to prevent the truck from moving while the generator-welder is in operation.

32. Electric Brake Lock

a. Removal. Refer to figure 12 and remove the electric brake lock.

b. Cleaning and Inspection.

(1) Clean the brake lock with a stiff brush to remove any heavy dirt; then wipe with a cloth dampened with an approved cleaning solvent. Dry with a stream of clean, dry, compressed air.

Note. Be careful not to allow foreign matter to enter the brake lock. Damage to the brake lock or hydraulic system may result.

(2) Inspect the brake lock for breaks, cracks, or other damage and defects.

(3) Inspect the clamp loop and mounting screw for damage and defects.

(4) Replace a defective brake lock, mounting screw, or clamp loop.

c. Installation.

(1) Refer to figure 12 and install the electric brake lock.

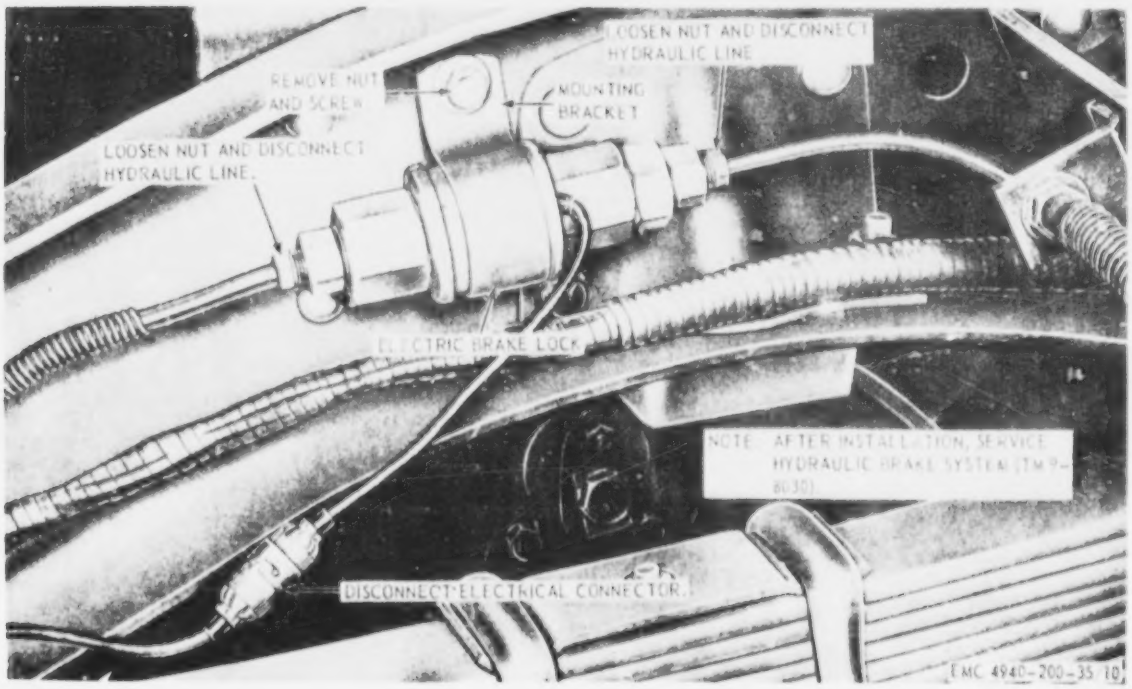

LOOSEN NUT AND DISCONNECT HYDRAULIC LINE
REMOVE NUT AND SCREW
MOUNTING BRACKET
LOOSEN NUT AND DISCONNECT HYDRAULIC LINE
ELECTRIC BRAKE LOCK
NOTE: AFTER INSTALLATION, SERVICE HYDRAULIC BRAKE SYSTEM (TM 9-8030)
DISCONNECT ELECTRICAL CONNECTOR
EMC 4940-200-35 10

Figure 12. Electric brake lock, removal and installation.

Note. Be sure the electric brake lock is installed in such a manner that the output side is toward the rear.

(2) Refer to TM 5–4940–200–12 and set the brake lock. Inspect lines for leaking connections. Tighten leaking connections. If the brakes fail to hold the truck in position, the electric brake lock is defective and must be replaced.

Section IV. DECLUTCHER, PROPELLER SHAFT, AND POWER TAKEOFF UNIVERSAL JOINT AND SHAFT ASSEMBLY

33. General

a. The declutcher is located between the truck transfer case and the propeller shaft. It provides a means of disconnecting the power from the transfer case to the rear wheels in order that the truck transmission may be placed in gear to provide power takeoff for driving the generator-welder.

b. The propeller shaft of the truck has been shortened to provide space for introduction of the declutcher into the power train; otherwise it remains in its normal position.

c. The power takeoff universal joint and shaft assembly is mounted to the emergency brakedrum by means of a yoke; it provides driving power to the power takeoff.

34. Declutcher and Coupling Flange

a. Removal. Refer to figure 13 and remove the declutcher and coupling flange.

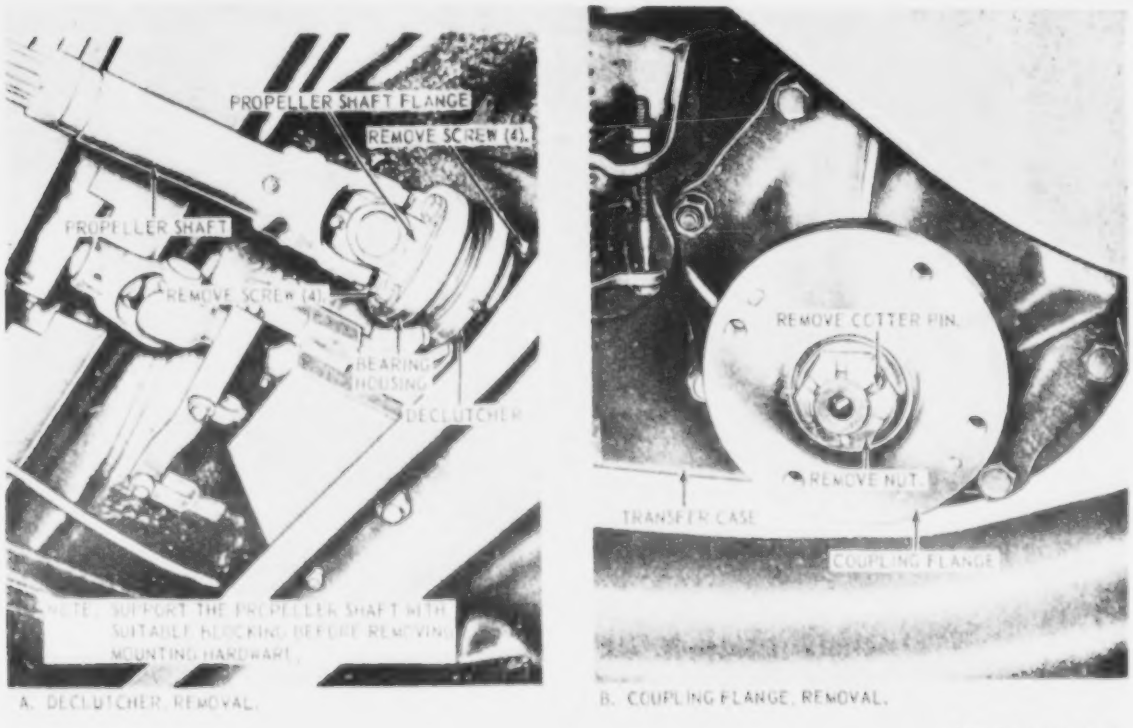


Figure 13. Declutcher and coupling flange, removal and installation.

Note. Match mark the propeller shaft and the declutcher bearing housing, and the declutcher drive gear and the coupling flange before removal so that identical positions are maintained on installation.

b. Disassembly. Refer to figure 14 and disassemble the declutcher.

c. Cleaning, Inspection, and Repair.

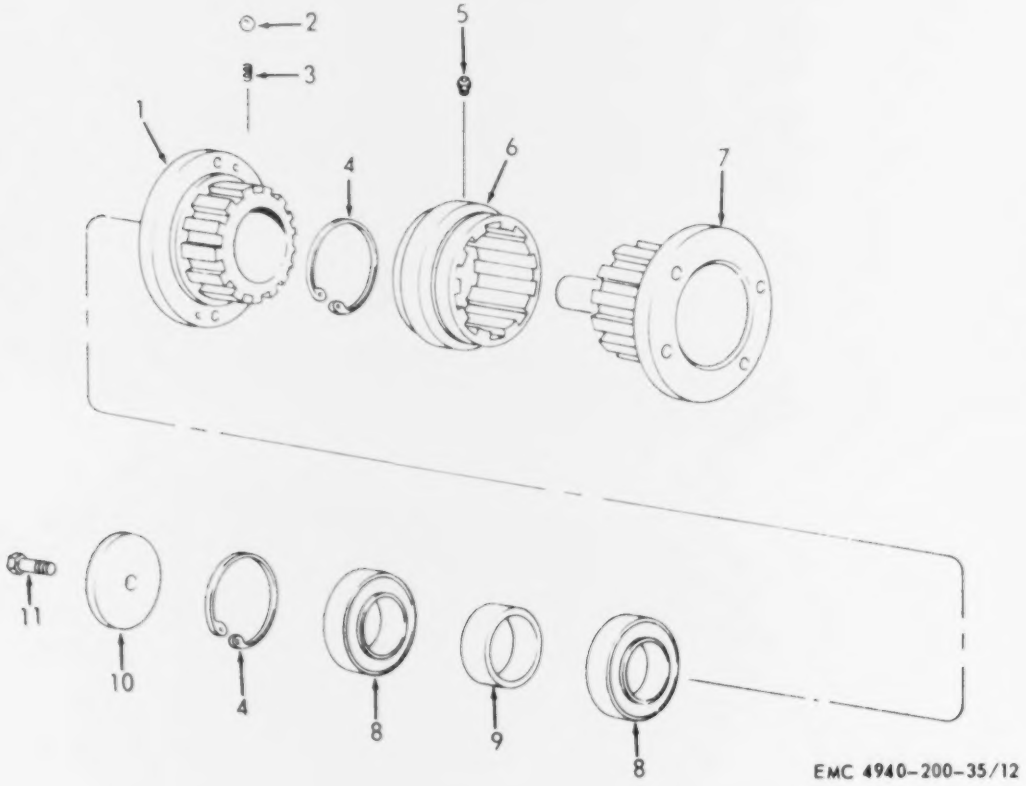
(1) Clean all metal parts, except bearings, in an approved cleaning solvent and dry thoroughly.

(2) Clean the bearings as described in paragraph 26.

(3) Inspect the drive gear, bearing housing, and sliding gear splines for excessive wear, burs, scores, nicks, or other damage.

(4) Inspect the bearings for wear rust, or rough spots.

(5) Inspect all metal parts for cracks and nicks.



1 Bearing housing
2 Steel locking ball, ¼ in. dia.
3 Helical compression spring
4 Retaining ring (2 rqr)
5 Lubrication fitting
6 Slide gear
7 Drive gear
8 Ball bearing (2 rqr)
9 Bearing spacer
10 Washer, flat, $^{13}/_{32}$ in. id, 1¼ in. od, $^{3}/_{32}$ in. thk
11 Screw, cap, hex-hd, ⅜-24 x ¾ in.

Figure 14. Declutcher, disassembly and reassembly.

(6) File minor burs and nicks smooth.

(7) Replace all damaged parts and hardware.

d. Reassembly. Refer to figure 14 and reassemble the declutcher.

e. Inspection. Inspect the coupling flange (fig. 13) for cracks or breaks. Replace a defective coupling flange.

f. Installation. Refer to figure 13 and install the coupling flange and declutcher.

35. Propeller Shaft

a. Removal.

(1) Refer to paragraph 34 and disconnect the propeller shaft flange from the declutcher.

(2) Refer to figure 15 and remove the propeller shaft.

b. Disassembly. Refer to figure 16 and disassemble the propeller shaft.

c. Cleaning, Inspection, and Repair.

(1) Clean all metal parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect the propeller shaft splines for excessive wear, burs, scores, nicks, or other damage.

(3) File off all burs and smooth nicks with a file.

(4) Inspect the hub yoke for burred, nicked, or scored splines and for cracks, damaged threads, and other defects.

(5) File burs and nicks from the splines. Replace a damaged hub yoke.

(6) Inspect the shaft assembly for cracks or breaks. Replace a cracked or broken shaft assembly.

(7) Clean the bearings as described in paragraph 26.

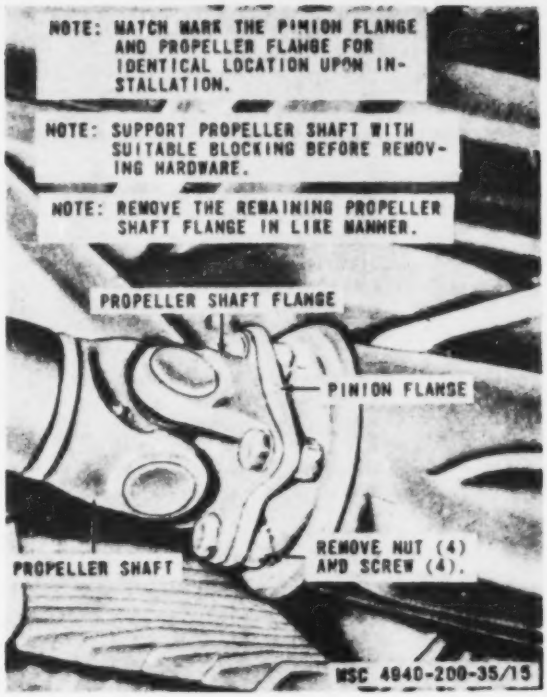

NOTE: MATCH MARK THE PINION FLANGE AND PROPELLER FLANGE FOR IDENTICAL LOCATION UPON INSTALLATION.
NOTE: SUPPORT PROPELLER SHAFT WITH SUITABLE BLOCKING BEFORE REMOVING HARDWARE.
NOTE: REMOVE THE REMAINING PROPELLER SHAFT FLANGE IN LIKE MANNER.
PROPELLER SHAFT FLANGE
PINION FLANGE
REMOVE NUT (4) AND SCREW (4).
PROPELLER SHAFT
MSC 4940-200-35/15

Figure 15. Propeller shaft, removal and installation.

(8) Inspect the bearings for wear, rust, galls, or rough spots.

(9) Replace a defective bearing by replacing the universal joint cross.

d. Reassembly. Refer to figure 16 and reassemble the propeller shaft.

e. Installation.

(1) Refer to figure 15 and install the propeller shaft.

(2) Refer to paragraph 34 and reconnect the propeller shaft flange to the declutcher.

36. Power Takeoff Universal Joint and Shaft Assembly

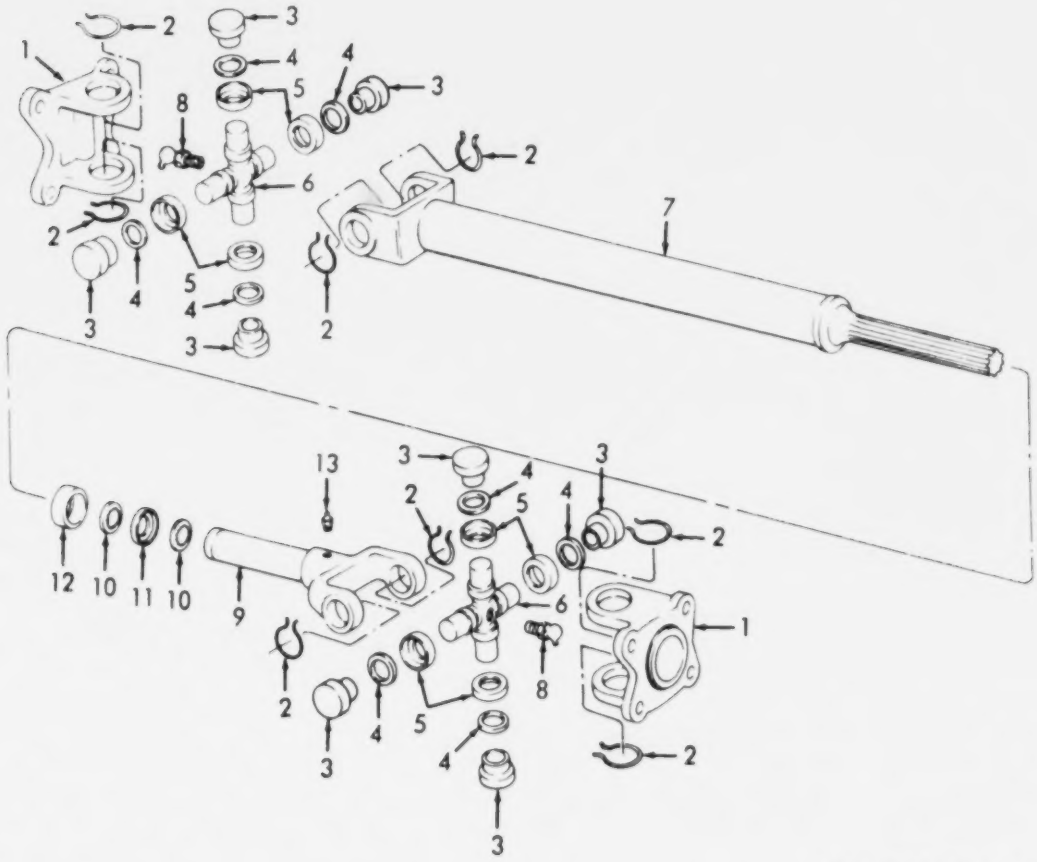
a. Removal. Refer to figure 17 and remove the power takeoff universal joint and shaft assembly.

b. Disassembly. Refer to figure 18 and disassemble the power takeoff universal joint and shaft.

c. Cleaning, Inspection, and Repair. Clean, inspect, and repair the power takeoff universal joint and shaft as described in paragraph 35.

d. Reassembly. Refer to figure 18 and reassemble the power takeoff universal joint and shaft.

e. Installation. Refer to figure 17 and install the power takeoff universal joint and shaft assembly.



1 Flange yoke (2 rqr)
2 Retaining ring (8 rqr)
3 Needle roller bearing (8 rqr)
4 Cork seal (8 rqr)
5 Bearing seal retainer (8 rqr)
6 Universal joint cross (2 rqr)
7 Propeller shaft
8 Lubrication fittings, 67½°, ⅛-27 in. (2 rqr)
9 Splined sleeve yoke
10 Seal washer (2 rqr)
11 Felt seal
12 Seal retainer
13 Straight lubrication fitting ⅛-27 in.

Figure 16. Propeller shaft, disassembly and reassembly.

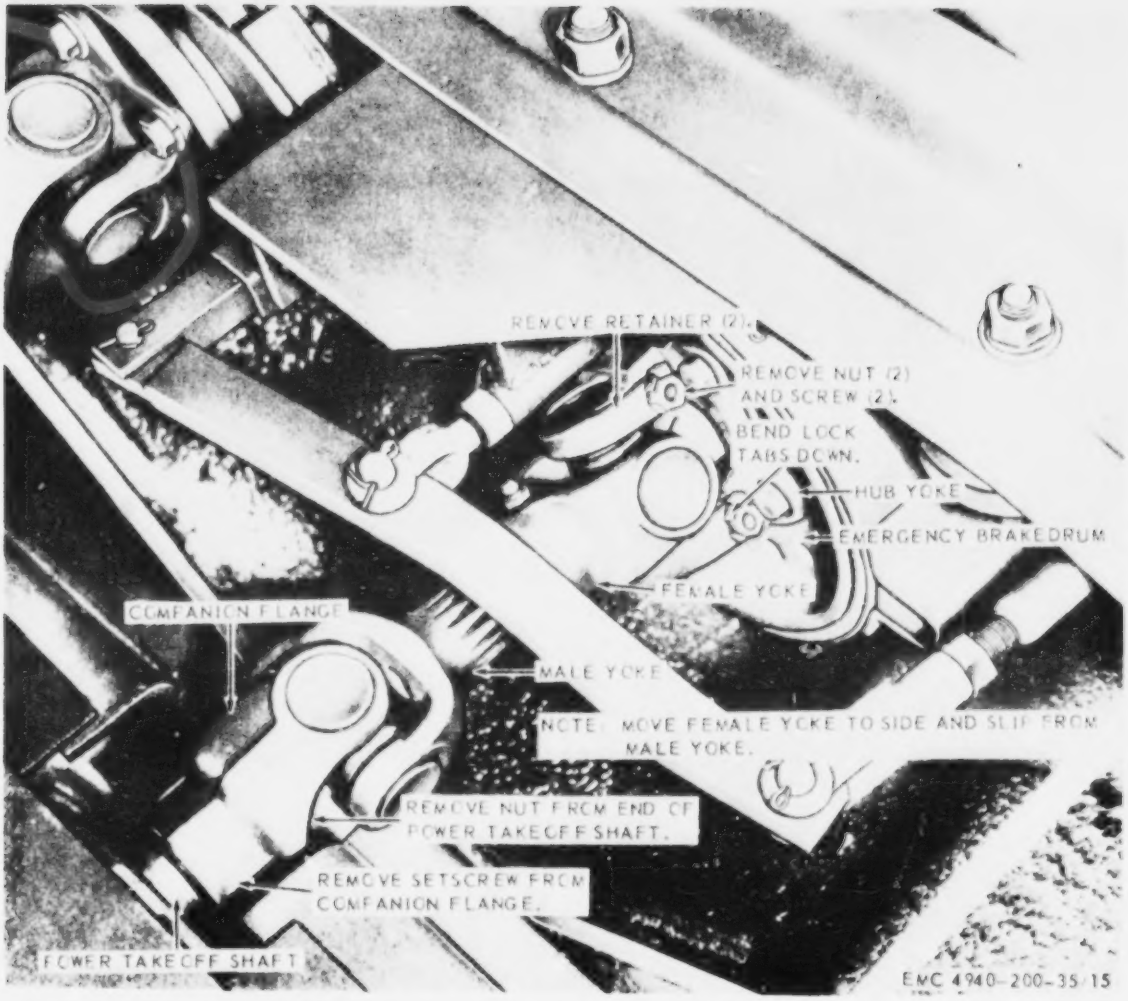
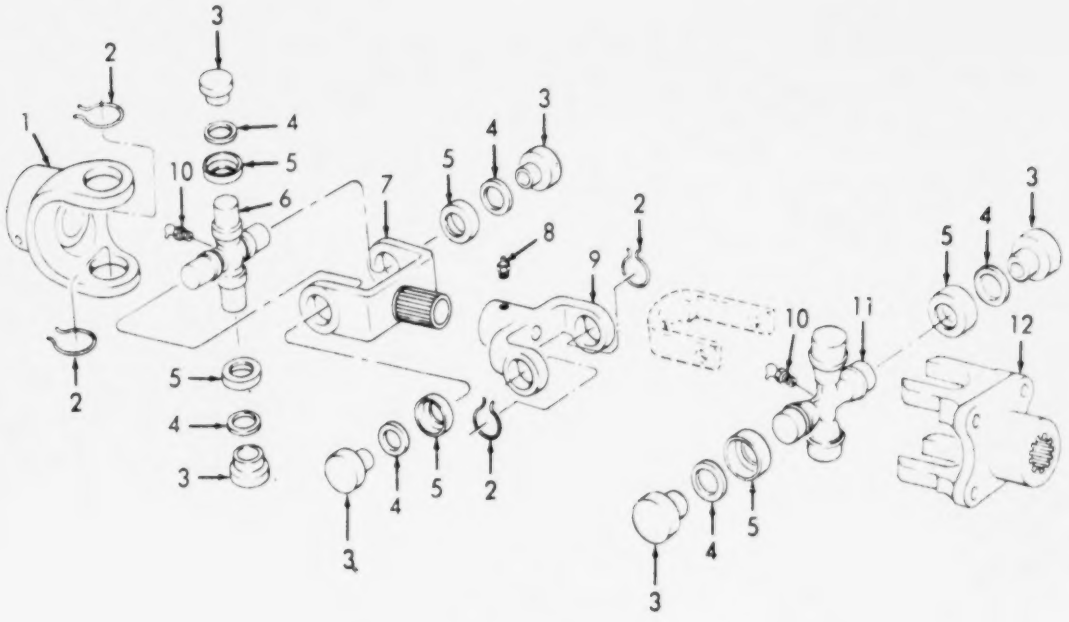

REMOVE RETAINER (2).
REMOVE NUT (2) AND SCREW (2).
BEND LOCK TABS DOWN.
HUB YOKE
EMERGENCY BRAKEDRUM
FEMALE YOKE
COMPANION FLANGE
MALE YOKE
NOTE: MOVE FEMALE YOKE TO SIDE AND SLIP FROM MALE YOKE.
REMOVE NUT FROM END OF POWER TAKEOFF SHAFT.
REMOVE SETSCREW FROM COMPANION FLANGE.
POWER TAKEOFF SHAFT
EMC 4940-200-35/15

Figure 17. Power takeoff universal joint and shaft assembly, removal and installation.



EMC 4940-200-35/16

1 Companion flange
2 Retaining ring (8 rqr)
3 Needle roller bearing (8 rqr)
4 Cork seal (8 rqr)
5 Retainer seal (8 rqr)
6 Universal joint cross (2 rqr)
7 Male yoke
8 Straight lubrication fitting, ⅛-27 in.
9 Female yoke
10 Lubricating fitting 67°, ⅛-27 in. (2 rqr)
11 Universal joint spider (2 rqr)
12 Hub yoke

Figure 18. Power takeoff universal joint and shaft, disassembly and reassembly.

Section V. POWER TAKEOFF AND POWER TAKEOFF CONTROLS

37. General

The power takeoff, located at the front of the body below the floor, is mounted on crossmembers through pillow blocks. Power is transmitted from the truck engine to the power takeoff and from the power takeoff through drive belts to the generator-welder. The power takeoff has a clutch which, through a linkage system, can be disengaged to shut off power to the generator-welder. It is protected from road dirt and water by a shield.

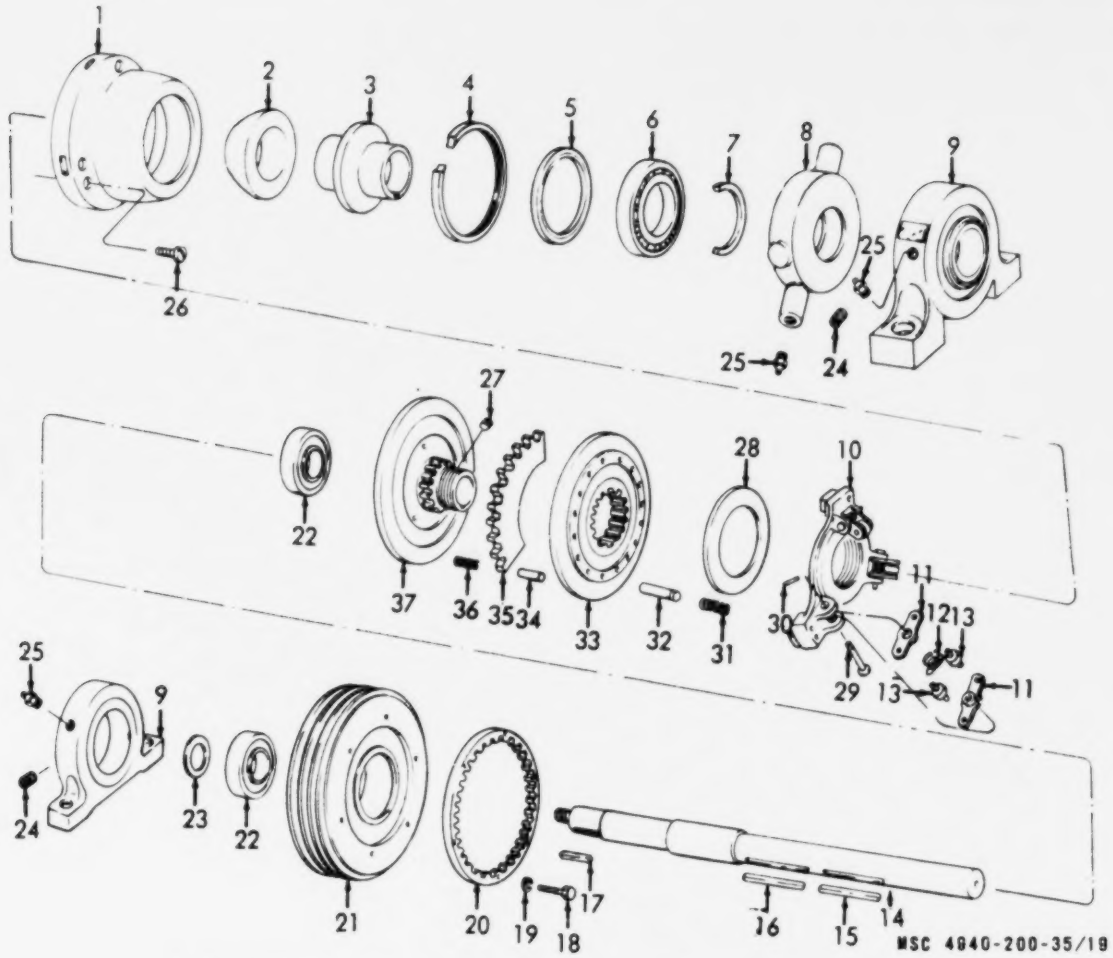
38. Power Takeoff

a. Removal. Refer to paragraph 21 and remove the power takeoff.

b. Disassembly.

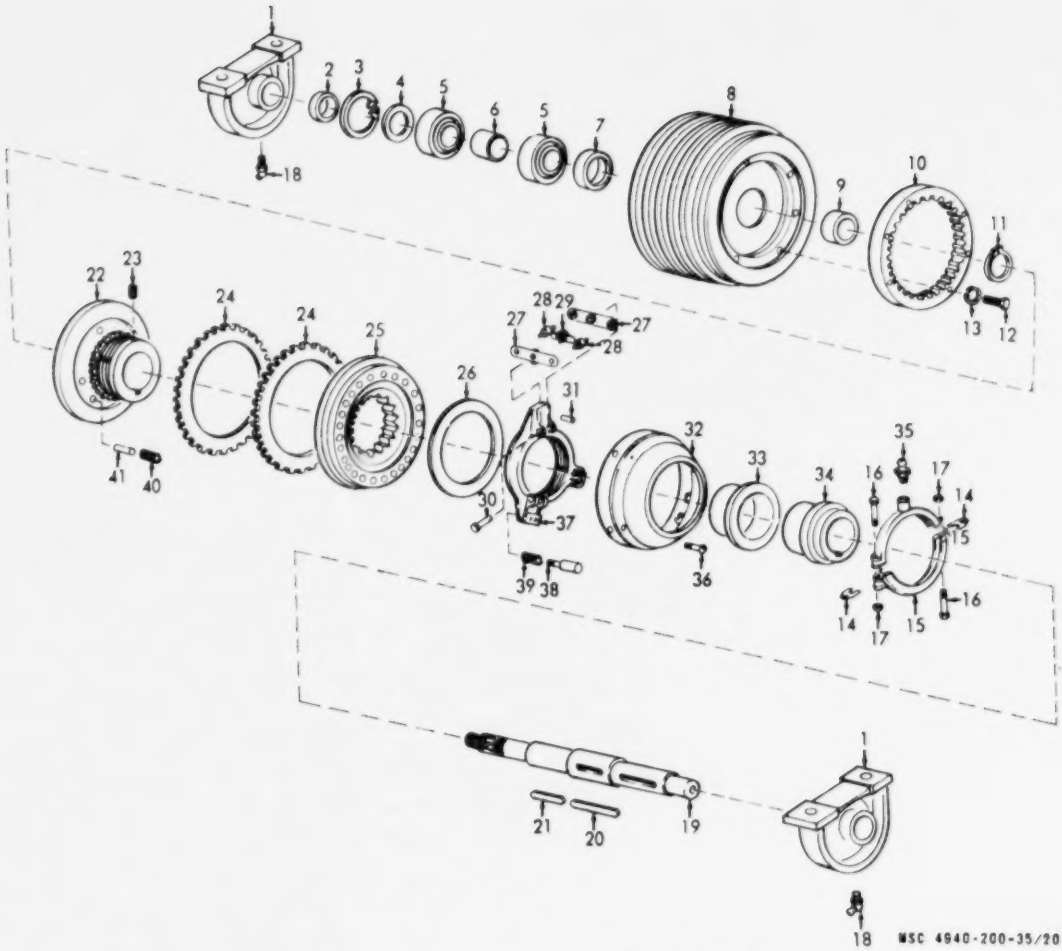
(1) Refer to figure 19 and disassemble the Model SECM power takeoff.

(2) Refer to figure 20 and disassemble the Model CMU-5 power takeoff.



1	Clutch cover	21	Pulley
2	Clutch cone ring	22	Ball bearing (2 rqr)
3	Cone sleeve	23	Spacer, 1⅜ in. id x 1¾ in. od x 1.108 in. thk
4	Snapring	24	Setscrew, socket-hd, 5/16-24 x ½ in. (2 rqr)
5	Flat washer (spec)	25	Lubrication fitting, ⅛-27 in. (3 rqr)
6	Ball bearing	26	Screw, machine, rd-hd, ¼-20 x ½ in. (3 rqr)
7	Snapring	27	Setscrew, socket-hd, half dog point, ⅜-16 x 7/16 in.
8	Cone collar	28	Roller clutch disk
9	Pillow block (2 rqr)	29	Pin (spec) (3 rqr)
10	Adjusting yoke	30	Pin, roll, ⅛ in. x ⅝ in. (3 rqr)
11	Shifter clutch lever (6 rqr)	31	Pin spring
12	Lever roller spring (3 rqr)	32	Clutch lockpin
13	Lever roller (6 rqr)	33	Floating clutch plate
14	Power takeoff shaft	34	Pin, roll, 5/32 in. x 13/16 in. (4 rqr)
15	Key, machine, 7/32 x ¼ x 2¾ in.	35	Drive plate (3 section)
16	Key, machine, 5/16 x 5/16 x 2 in.	36	Clutch release spring (4 rqr)
17	Key, machine, ¼ x ¼ x 1¼ in.	37	Hub back plate
18	Bolt, machine, 5/16-18 x 1¼ in. (6 rqr)		
19	Washer, lock, 5/16 in. (6 rqr)		
20	Interval gear		

Figure 19. Power takeoff, Model SECM, disassembly and reassembly.



1 Pillow block
2 Spacer
3 Retaining ring
4 Bearing baffle
5 Ball bearing (2 rqr)
6 Spacer
7 Oil seal
8 Pulley
9 Spacer
10 Interval gear
11 Snapring
12 Bolt, machine, 5/16-18 x 1½ in. (6 rqr)
13 Washer, lock, 0.319 in. id, 0.519 in. od, 0.078 in. thk (6 rqr)
14 Shim (2 rqr)
15 Split cone collar
16 Screw, cap, hex-hd, ⅜-24 x 2¼ in. (2 rqr)
17 Nut, plain, hex, ⅜-24 (2 rqr)
18 Lubrication fitting, 45 degrees, ¼-28 (2 rqr)
19 Shaft
20 Key
21 Square key
22 Hub and back plate
23 Setscrew, ⅜-16 x ⅞ in. lg.
24 Driving plate (2 rqr)
25 Floating clutch plate
26 Roller disk
27 Lever (6 rqr)
28 Roller (6 rqr)
29 Lever spring (3 rqr)
30 Lever pin (3 rqr)
31 Pin, roll, 0.125 in. dia. 0.625 in. lg, 0.028 in. thk. (3 rqr)
32 Cover
33 Cone ring
34 Cone sleeve
35 Lubrication fitting, ⅛-27
36 Screw, machine, ¼-20 x ½ in. (3 rqr)
37 Adjusting yoke
38 Lock pin
39 Pin spring
40 Release spring (4 rqr)
41 Pin, spring, release, 5/32 in. dia, 1 1/16 in. lg, 0.032 in. thk (4 rqr)

Figure 20. Power takeoff, Model CMU-5, disassembly and reassembly.

c. Cleaning, Inspection, and Repair.

(1) Clean all metal parts, except bearings, in an approved cleaning solvent and dry thoroughly.

(2) Clean and inspect the bearings as described in paragraph 26.

(3) Inspect all metal parts for cracks or breaks.

(4) Inspect the pulley for nicks, wear, burs, or cracks. Smooth all burs and minor nicks with a file. Replace a defective pulley.

(5) Inspect the hub and back plate, floating plate, and roller disk for cracks, breaks, galled bearing surfaces, rough bearing surfaces, and excessive wear. Replace a defective hub and back plate, floating plate, or roller disk.

(6) Inspect all gears for excessive wear, nicks, and cracks. Replace a damaged gear.

(7) Inspect the adjusting yoke, lever pin, lever, roller, and lever spring for cracks, breaks, excessive wear, or other damage. Replace if defective.

(8) Inspect the clutch cover for cracks, breaks, or dents.

(9) Hammer out dents in the clutch cover. Discard a cracked or broken clutch cover.

(10) Inspect the cone sleeve for burs, nicks, galls, and excessive wear. Replace a damaged cone ring or cone sleeve.

(11) Inspect the cone collar for excessive wear, cracks, or breaks. Replace a defective cone collar.

(12) Inspect the pillow blocks for excessive wear, cracks, or breaks. Replace a defective pillow block.

(13) Inspect all V-belts for wear, cracks, and fraying. Replace defective V-belts.

d. Reassembly.

(1) Refer to figure 19 and reassemble the model SECM power takeoff.

(2) Refer to figure 20 and reassemble the model CMU–5 power takeoff.

e. Installation. Refer to paragraph 21 and install the power takeoff.

f. Adjustment. Refer to TM 5–4940–200–12 and adjust the power takeoff clutch.

39. Clutch Operating Linkage Bracket Assembly

a. Removal. Refer to paragraph 21 and remove the clutch operating linkage bracket assembly.

b. Disassembly. Refer to figure 21 and disassemble the clutch operating linkage bracket assembly.

c. Cleaning, Inspection, and Repair.

(1) Clean all parts in an approved cleaning solvent and dry thoroughly.

(2) Inspect all parts for cracks, breaks, or excessive wear.

(3) Replace all worn or defective parts.

d. Reassembly. Refer to figure 21 and reassemble the clutch operating linkage bracket assembly.

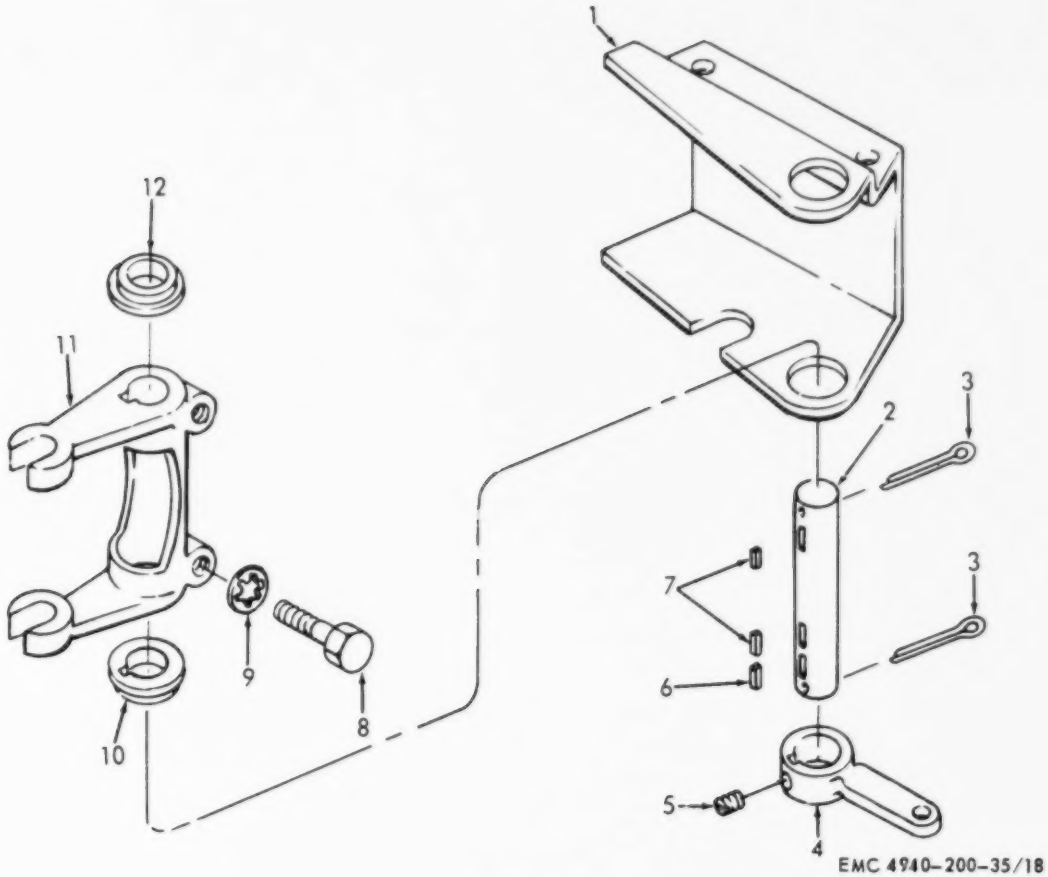
e. Installation. Refer to paragraph 21 and install the clutch operating linkage bracket assembly.

40. Power Takeoff Upper Linkage

a. Removal. Refer to TM 5–4940–200–12 and remove the model SECM or model CMU–5 power takeoff upper linkage.

b. Disassembly.

(1) Refer to figure 22 and disassemble the power takeoff upper linkage, model SECM.



1 Lower linkage bracket
2 Takeoff arm shaft
3 Pin, cotter, ⅛ x 2 in. (2 rqr)
4 Operating arm
5 Setscrew, socket-hd, ¼–20 x ¼ in.
6 Key, machine, ¼ x ¼ x ¾ in.
7 Key, machine, ¼ x ¼ x 1 in.
8 Screw, cap, hex-hd, ⅜–16 x 1½ in. (2 rqr)
9 Washer, lock, IT, ⅜ in. (2 rqr)
10 Lower bushing
11 Clutch shifter fork
12 Upper bushing

Figure 21. Clutch operating linkage bracket assembly, disassembly and reassembly.

(2) Refer to figure 23 and disassemble the power takeoff upper linkage, model CMU–5.

c. Cleaning, Inspection, and Repair.

(1) Clean the upper linkage in an approved cleaning solvent.

(2) Inspect all parts for cracks, breaks and other damage.

(3) Weld cracks and minor breaks.

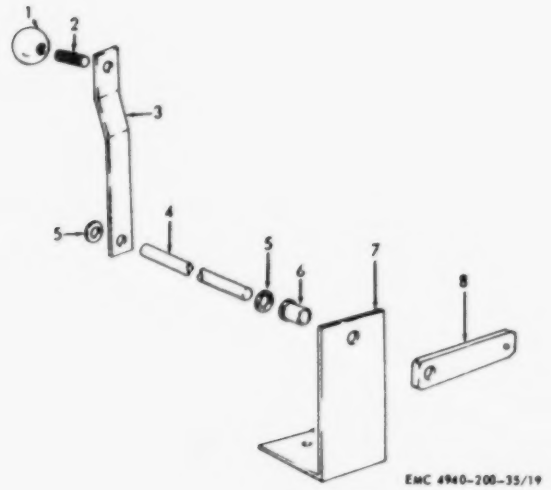
(4) Replace all defective parts.

d. Reassembly.

(1) Refer to figure 22 and reassemble the power takeoff upper linkage, model SECM.

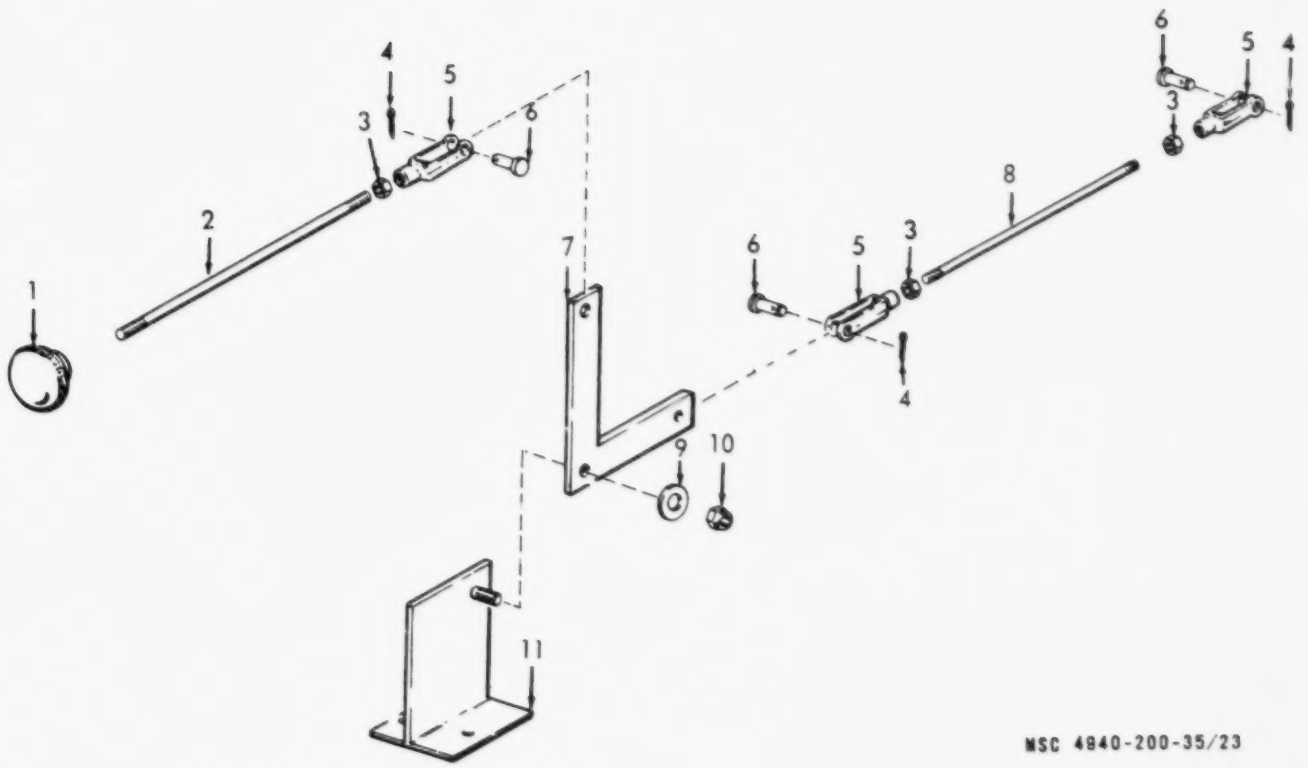
(2) Refer to figure 23 and reassemble the power takeoff upper linkage, model CMU–5.

e. Installation. Refer to TM 5–4940–200–12 and install the model SECM or model CMU–5 power takeoff upper linkage.



1 Knob
2 Stud (spec)
3 Operating lever
4 Lever shaft
5 Washer, flat, 1 3/16 in. id, 2 in. od, 0.177 in. thk (2 rqr)
6 Sleeve bearing (2 rqr)
7 Upper linkage bracket
8 Oeprating link

Figure 22. Power takeoff upper linkage, model SECM, disassembly and reassembly.



1 Knob
2 Sh.ft rod
3 Nut, plain, hex, ⅜–24 (3 rqr)
4 Pin, cotter, ⅛ in. dia, 1 in. lg (3 rqr)
5 Clevis (3 rqr)
6 Clevis pin, ⅜ in. dia, 1 in. lg (3 rqr)
7 Bellcrank
8 Clutch rod
9 Washer, plain, flat, ½ in. id, 1⅜ in. od, ⅛ in. thk
10 Nut, shoulder, hex (spec)
11 Bracket

Figure 23. Power takeoff upper linkage, model CMU–5, disassembly and reassembly.

Section VI. GENERATOR-WELDER

41. General

The generator-welder is a multi-purpose machine capable of generating direct current for welding, battery charging, or furnishing power to start equipment with low or defective batteries. It will generate 120-volt, single-phase, or 200-volt, 3-phase current and has an integrated 220-volt, 3-phase electric motor which can be used to drive the direct current generator portion when an outside electrical power source is available. The truck engine is the basic source of power for operation of the machine. Power from the truck engine is delivered through flange and brakedrum, universal joint and shaft assembly, power takeoff pulleys, and belts to the armature shaft.

42. On-Equipment Testing

a. Exciter Armature. Refer to TM 5–764 for armature testing procedures.

b. Revolving Field.

(1) Refer to TM 5–4940–200–12 and lift the brushes from the electrical contact rings.

(2) Using a multimeter, test between the two electrical contact rings. A reading of more than 19.95 ohms or less than 18.05 ohms indicates defective wiring or electrical contact rings; the armature must be removed for further testing.

(3) Refer to TM 5–764 for procedures to be used in testing between the armature shaft and the electrical contact rings.

c. Generator-welder Armature. Refer to TM 5–764 for armature testing procedures.

d. Motor Stator. Refer to TM 5–764 for motor stator testing procedures.

e. Exciter Field Group.

(1) Disconnect the exciter leads marked EXF and EX + at the terminal board on the generator-welder. Refer to figure 1 or figure 2.

(2) Refer to TM 5–4940–200–12 and lift the brushes from the sliprings and from the exciter commutator.

(3) Refer to TM 5–4940–200–12 and remove the capacitor from the positive brush group.

(4) Using a multimeter, test between leads. A reading of more than 63 ohms or less than 57 ohms indicates a faulty field coil or interconnections; the stator assembly must be removed for additional testing.

(5) Test between the field and one of the exciter leads marked EXF or EX + as described in TM 5–764. A reading of less than 0.5 megohm indicates faulty insulation; the stator assembly must be removed for additional testing.

f. Shunt Field. Refer to TM 5–764 for shunt field testing procedures. A reading of less than 0.5 megohm indicates faulty insulation; the field frame must be removed for additional testing.

g. Welding Generator Series Field Group. Refer to TM 5–764 for series field group testing procedures.

h. Welding Generator Interpole Group. Refer to TM 5–764 for interpole group testing procedures.

43. Generator-Welder

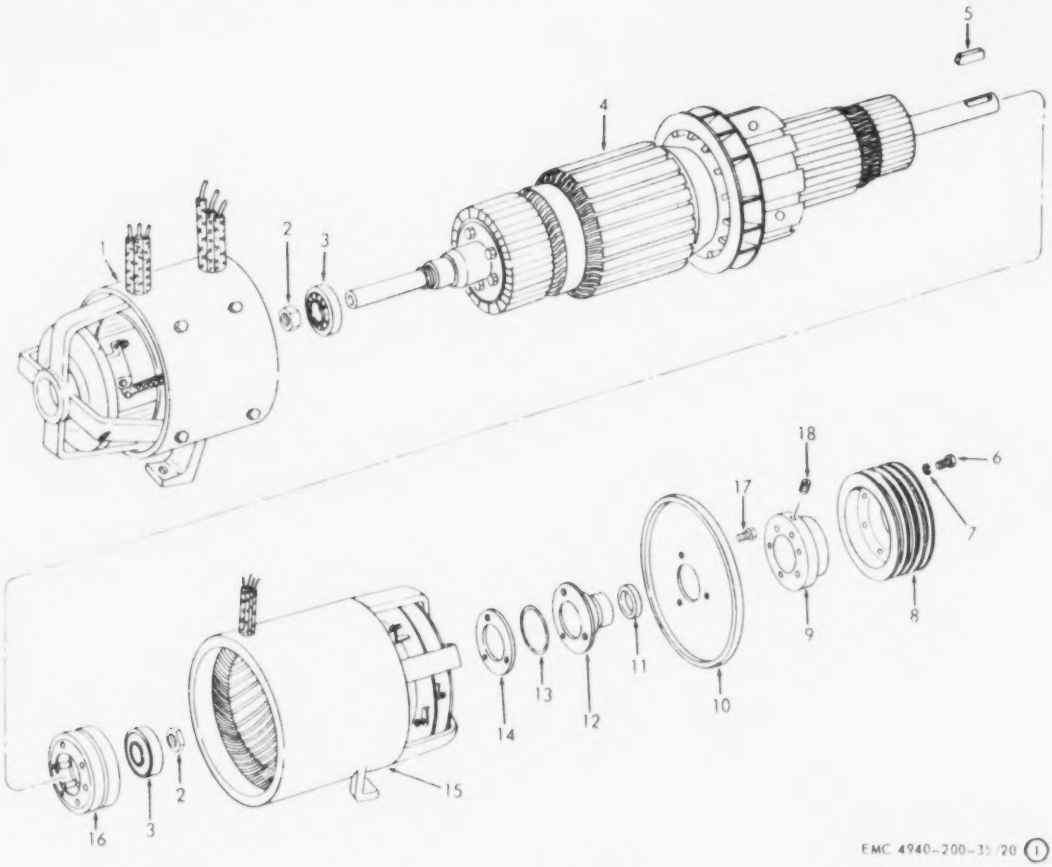
a. Removal. Refer to paragraph 22 and remove the generator-welder.

b. Testing During or After Disassembly. Refer to TM 5–764 and test each component of the generator-welder at the appropriate time during disassembly.

c. Disassembly.

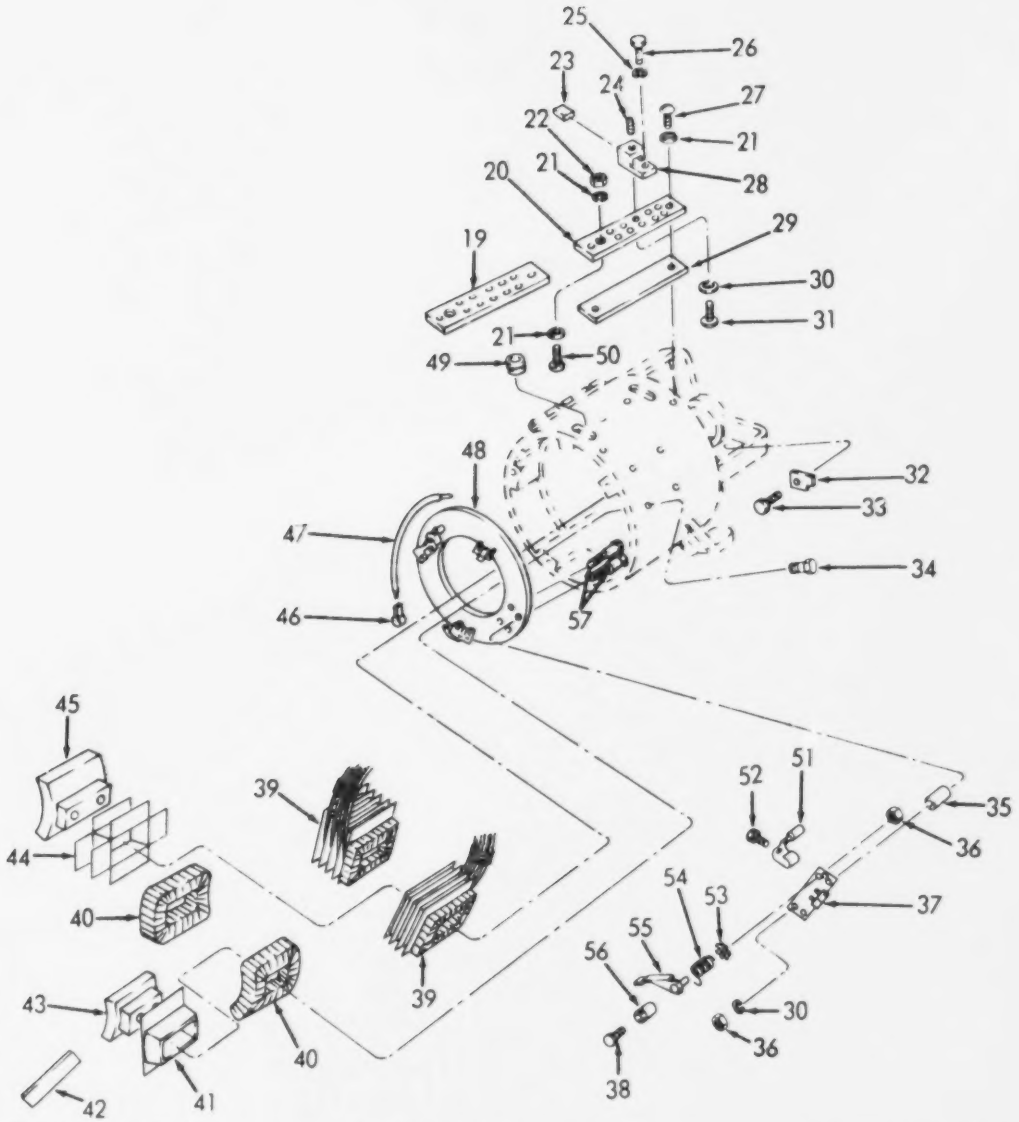
(1) Refer to TM 5–4940–200–12 and remove the air filters, and wrappers, rear shaft guard, and end cover.

(2) Refer to figure 24 and disassemble the generator-welder.



1	Welder stator assembly	10	End cover
2	Nut, hex, 1$^{9}/_{16}$–14 (2 rqr)	11	Felt washer (2 rqr)
3	Ball bearing (2 rqr)	12	Bearing cap (2 rqr)
4	Armature assembly	13	Bearing shim
5	Key, machine, $^{3}/_{8}$ x 2$^{1}/_{2}$ in.	14	Gasket
6	Bolt, machine, hex-hd, $^{5}/_{16}$–18 x 2 in. (6 rqr)	15	Exciter stator assembly
7	Washer, lock, $^{5}/_{16}$ in. (6 rqr)	16	Electrical contact ring assembly
8	Pulley	17	Bolt, machine, hex-hd, $^{5}/_{16}$–18 x $^{3}/_{4}$ in. (3 rqr)
9	Pulley hub	18	Setscrew, socket-hd, $^{1}/_{4}$–20 x $^{3}/_{8}$ in.

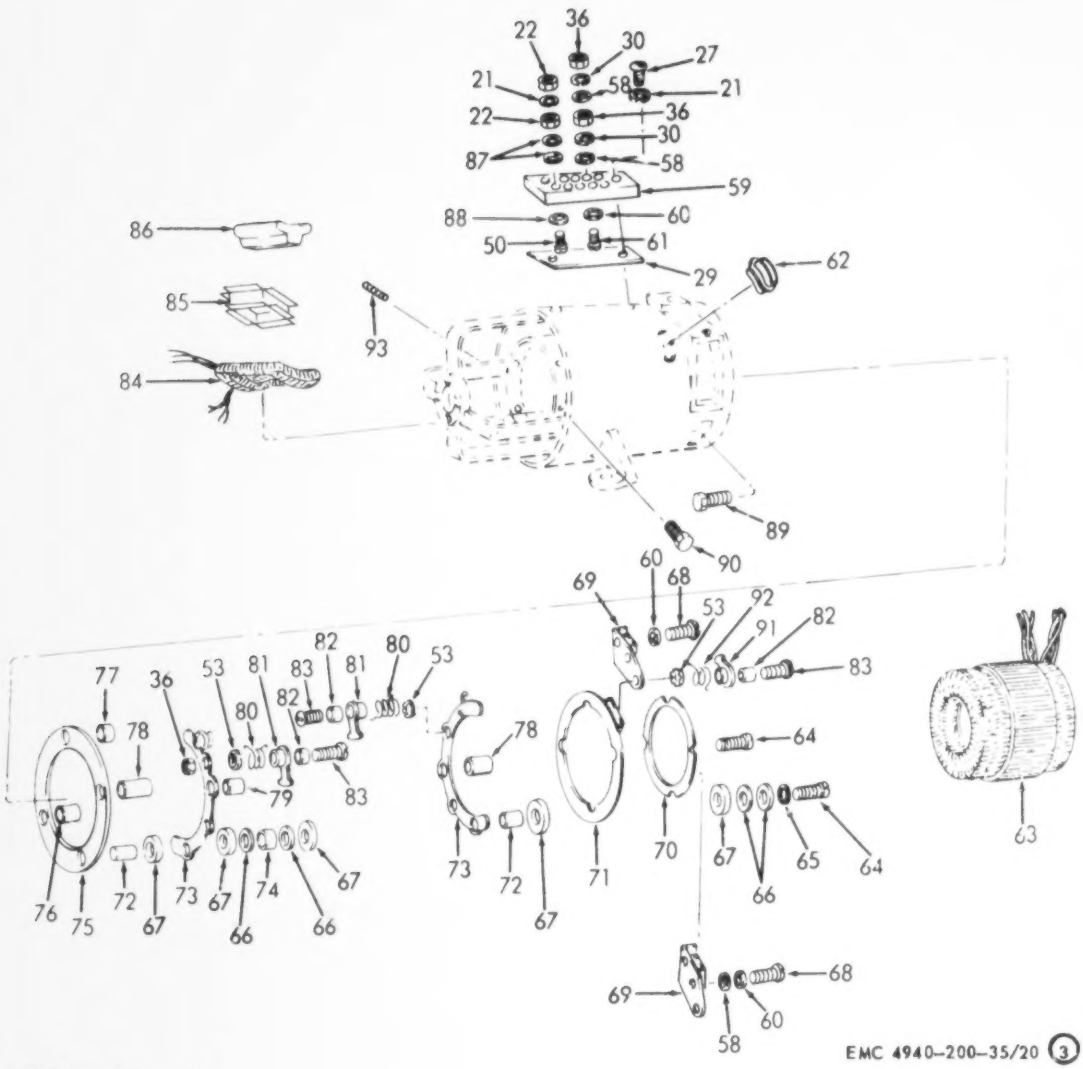
Figure 24. Generator-welder, disassembly and reassembly.



19 Terminal board, rh
20 Terminal board, lh
21 Washer, lock, No. 10 (20 rqr)
22 Nut, plain, hex, No. (10 rqr)
23 Clamp shim, copper, 11/16 x 3/4 x 1/8 in. (20 rqr)
24 Setscrew, 3/8–16 x 3/8 in. (10 rqr)
25 Washer, lock, 5/16 in. (10 rqr)
26 Screw, cap, hex-hd, 5/16–18 x 1/2 in. (10 rqr)
27 Screw, machine, rd-hd, No. 10–24 x 1 in. (8 rqr)
28 Terminal lug (10 rqr)
29 Insulating strip, 1 1/2 x 18 in. (3 rqr)
30 Washer, lock, 1/4 in. (18 rqr)
31 Screw, machine, rd-hd, 1/4–20 x 3/4 in. (10 rqr)
32 Brush holder ring clamp (2 rqr)
33 Screw, cap, hex-hd 1/4–20 x 1 1/4 in. (2 rqr)
34 Screw, cap, hex-hd, 3/8–16 x 1 3/4 in. (12 rqr)
35 Brush holder bushing (4 rqr)
36 Nut, hex, 1/4–20 (24 rqr)
37 Brush holder (4 rqr)
38 Setscrew, 3/8–20 x 1/2 in. (2 rqr)
39 Interpole winding (4 rqr)
40 Shunt field winding (2 rqr)
41 Magnet insulator (2 rqr)
42 Insulator strip (2 rqr)
43 Pole piece magnet (2 rqr)
44 Winding wrapper (4 rqr)

Figure 24—Continued.

45 Pole piece (2 rqr)
46 Terminal (4 rqr)
47 Electrical lead (4 rqr)
48 Brush holder mounting ring
49 Fiber bushing (2 rqr)
50 Screw, machine, rd-hd, No. 10–24 x 1 in. (10 rqr)
51 Brush holder spacer (4 rqr)
52 Screw, cap, hex-hd, type Z, 1/4–20 x 3/8 in. (4 rqr)
53 Spring adjusting washer (10 rqr)
54 Brush spring (4 rqr)
55 Brush tension arm (4 rqr)
56 Brush tension arm bushing (4 rqr)
57 Screw, machine, rd-hd, 1/4–20 x 2 in. (12 rqr)



58 Washer, flat, ¼ in. (12 rqr)
59 Terminal board
60 Washer, lock, IT, ¼ in. (14 rqr)
61 Screw, machine, rd-hd, ¼–20 x 1¼ in. (6 rqr)
62 Rubber bushing
63 Motor end stator
64 Screw, cap, hex-hd, ⅜–16 x 2½ in. (4 rqr)
65 Washer, lock, ⅜ in. (4 rqr)
66 Washer, flat, ⅜ in. (13 rqr)
67 Washer, nonmetallic, $^{33}/_{64}$ in. id, 1⅛ in. od (14 rqr)
68 Screw, machine, rd-hd, ¼–20 x ⅜ in. (8 rqr)
69 Brush holder (4 rqr)
70 Exciter commutator inner brush ring
71 Exciter commutator outer brush ring
72 Brush holder stud insulator (4 rqr)
73 Brush holder ring (2 rqr)
74 Brush ring sleeve bearing
75 Brush holder mounting ring
76 Brush ring sleeve bearing
77 Brush ring sleeve bearing
78 Brush ring sleeve bearing (2 rqr)
79 Insulator bushing
80 Brush spring (2 rqr)
81 Brush arm (2 rqr)
82 Brush spring bushing (6 rqr)
83 Screw, machine, rd-hd, ¼–20 x ⅞ in. (6 rqr)
84 Shunt winding (4 rqr)
85 Winding wrapper (4 rqr)
86 Pole piece (4 rqr)
87 Washer, flat, $^{7}/_{32}$ in. id, ½ in. od, 0.049 in. thk (12 rqr)
88 Washer, lock, IT, No. 10 (6 rqr)
89 Screw, cap, hex-hd, ⅜–16 x 1⅜ in. (4 rqr)
90 Screw, cap, hex-hd, ⅜–16 x 1¼ in. (4 rqr)
91 Brush arm (4 rqr)
92 Brush spring (4 rqr)
93 Setscrew, ⅜–16 x ⅞ in. (4 rqr)

Figure 24—Continued.

d. Cleaning, Inspection, and Repair.

(1) Clean all metal parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect the brush holders, brush holder rings, plates, and brush spring assemblies for breaks, cracks, or other damage. Replace all parts found to be defective.

(3) Clean a slightly dirty or discolored commutator with No. 00 sandpaper. Blow sand, dust, and dirt from the armature with clean, dry, compressed air.

***Caution:* Do not use emery paper or emery cloth on any commutator.**

(4) Inspect the armature shaft bearing surface for wear or damage. Examine the bearing for wear, galling, roughness, or other damage. Replace a damaged bearing.

(5) Inspect the electrical contact ring assembly for roughness, wear, and roundness. If defects cannot be corrected, replace the electrical contact ring assembly.

(6) Inspect the welder commutator and the generator commutator for roughness, wear, or eccentricity. Measure the commutator runout with a dial indicator. Place the armature assembly in a lathe and turn a commutator that is 0.003 inch or more out-of-round. Make light cuts until the commutator is cleaned.

(7) Undercut the mica separators in the commutator to a depth of one thirty-second inch below the commutator bars, either by hand or by machine.

(8) Inspect all stator assemblies and field coils for defective insulation, broken leads, or other defects. Replace defective windings, leads, or insulation.

(9) Inspect the terminal boards for cracks, breaks, defective terminals or terminal components. Replace a defective terminal board or components.

(10) Inspect each frame member for cracks or breaks. Weld minor cracks and replace a damaged frame.

(11) Inspect each panel of the generator box for cracks, dents, and defective mounting hardware. Straighten dents, weld cracks, and replace defective mounting hardware. Replace a badly damaged panel.

(12) Inspect the conduit assembly for cracks and breaks. Replace a damaged conduit assembly.

(13) Inspect the generator-welder base for cracks, breaks, and damaged mounting hardware. Weld cracks and minor breaks. Replace damaged mounting hardware.

e. Reassembly.

(1) Refer to figure 24 and reassemble the generator-welder.

(2) Refer to TM 5-4940-200-12 and install the end cover, rear shaft guard, end wrappers, and air filters.

f. Installation. Refer to paragraph 22 and install the generator-welder.

Section VII. CONTROLS AND INSTRUMENTS

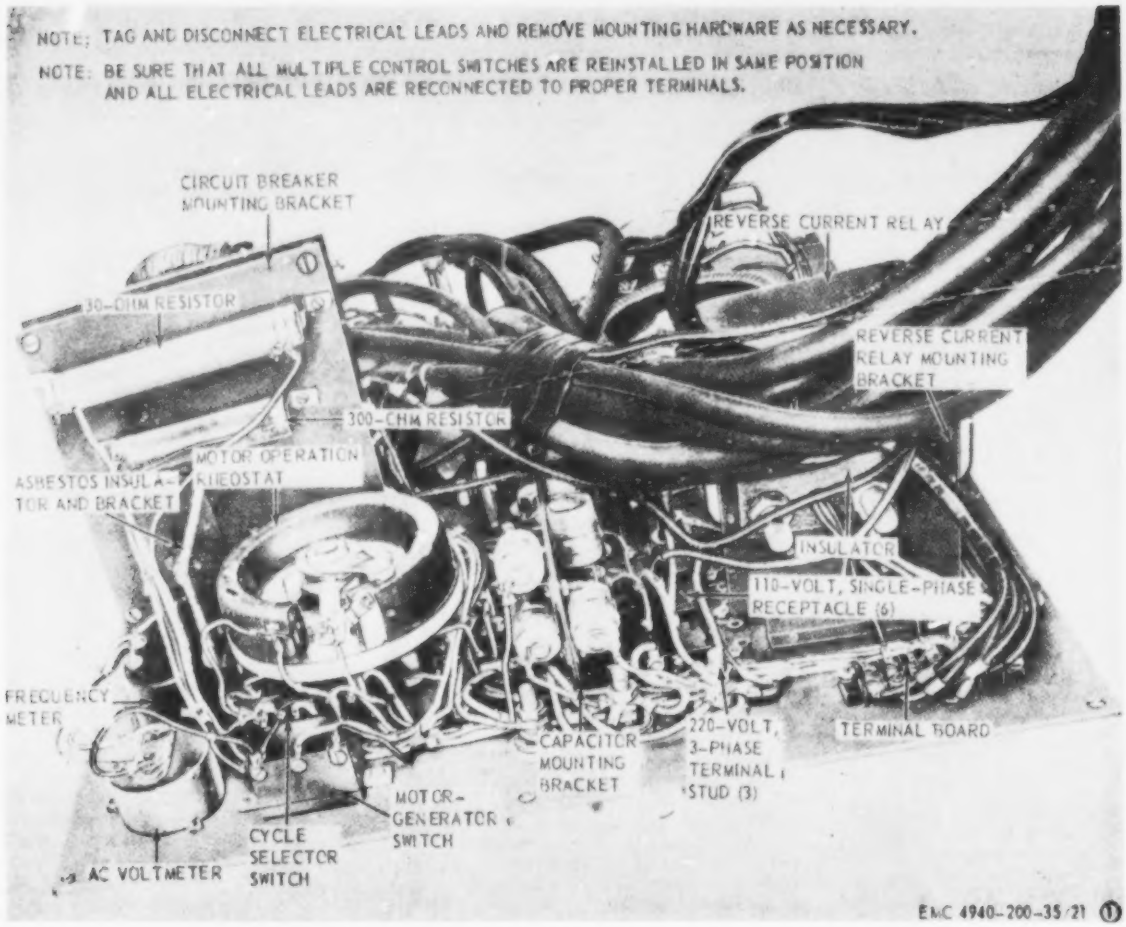
44. General

The control panel for the generator-welder is located in the front compartment of the left side of the shop set body. It contains all the instruments necessary to operate the generator-welder as an arc welder, a battery-charging generator, an alternating current generator, and as a source of direct current for engine starting.

45. Controls and Instruments

a. Removal.

(1) Refer to paragraph 23 and remove the control panel.


NOTE: TAG AND DISCONNECT ELECTRICAL LEADS AND REMOVE MOUNTING HARDWARE AS NECESSARY.
NOTE: BE SURE THAT ALL MULTIPLE CONTROL SWITCHES ARE REINSTALLED IN SAME POSITION AND ALL ELECTRICAL LEADS ARE RECONNECTED TO PROPER TERMINALS.
CIRCUIT BREAKER MOUNTING BRACKET
REVERSE CURRENT RELAY
30-OHM RESISTOR
REVERSE CURRENT RELAY MOUNTING BRACKET
300-OHM RESISTOR
MOTOR OPERATION RHEOSTAT
ASBESTOS INSULATOR AND BRACKET
INSULATOR
110-VOLT, SINGLE-PHASE RECEPTACLE (6)
FREQUENCY METER
CAPACITOR MOUNTING BRACKET
220-VOLT, 3-PHASE TERMINAL STUD (3)
TERMINAL BOARD
MOTOR-GENERATOR SWITCH
CYCLE SELECTOR SWITCH
AC VOLTMETER
EMC 4940-200-35/21

1 Rear view

Figure 25. Controls and instruments, model SECM, removal and installation.

(2) Refer to figure 25 and remove the controls and instruments, model SECM.

(3) Refer to figure 25 and remove the controls and instruments, model CMU–5, in a similar manner.

b. Cleaning and Inspection.

(1) Clean metal components with a bristle brush. Remove dust with clean, dry, compressed air.

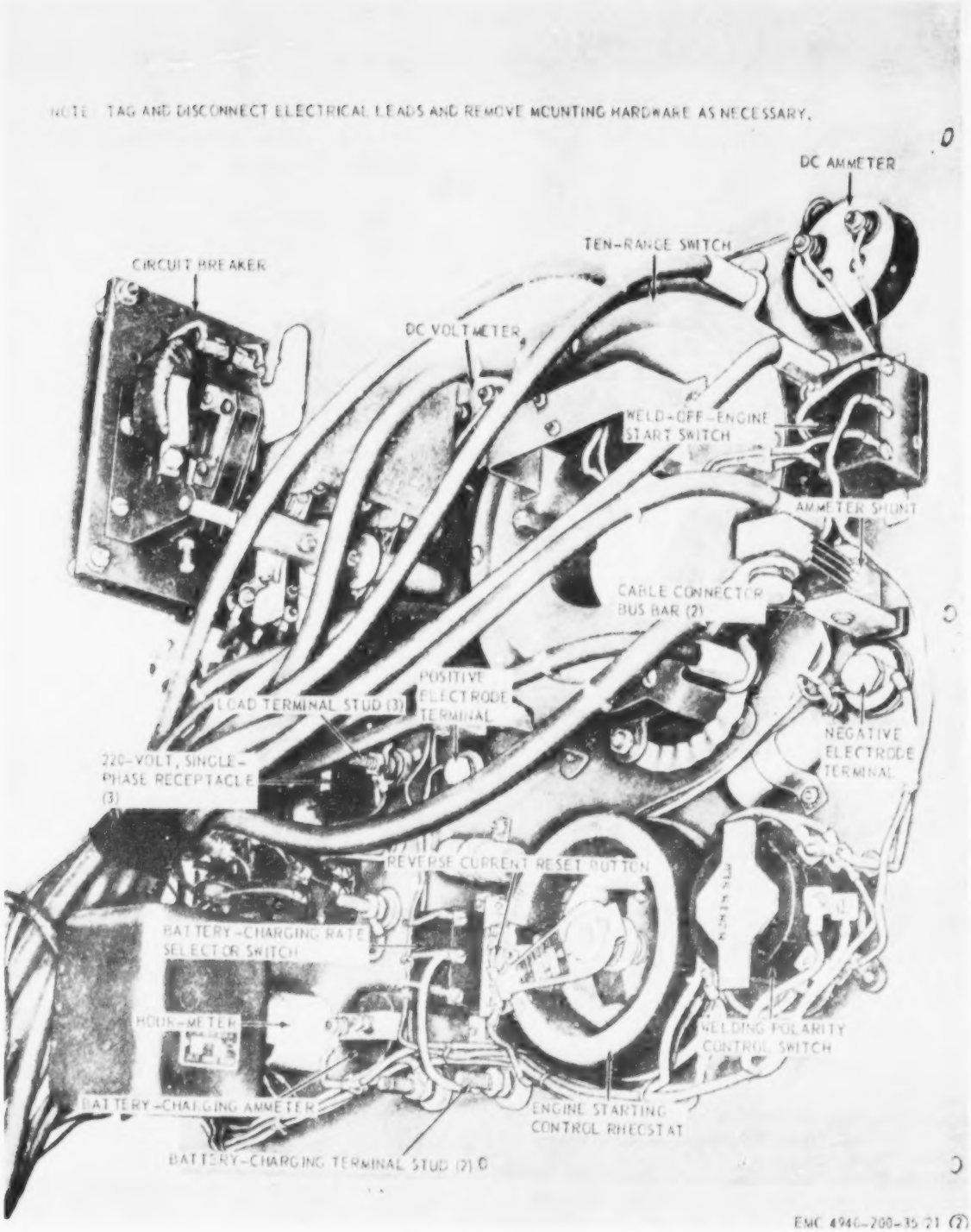
(2) Inspect all electrical leads for defective insulation, broken lugs, frayed wires, or other defects. Repair or replace all defective electrical leads.

(3) Refer to TM 5–4940–200–12 and inspect and test the capacitors. Replace a defective capacitor (TM 5–4940–200–12).

(4) Inspect each meter for cracked glass, defective terminals, cracked or broken cases, incorrect readings, and inaccuracy. Replace a defective meter.

(5) Inspect each switch for cracks, breaks, defective action, defective or damaged terminals, or other damage. Replace a defective or damaged switch.

(6) Inspect the 110-volt and 220-volt receptacles for defective terminals, de-



2 Detail of rear view.

Figure 25—Continued.

fective contacts, and cracked or broken insulation. Replace a defective receptacle.

(7) Inspect each terminal stud for damaged threads, insulation, or wingnuts. Replace a damaged terminal.

(8) Inspect each rheostat for broken or worn contacts, cracked or broken insulators, defective resistor wire, damaged or defective terminals, and damaged mounting hardware. Use a multimeter to test the resistor for continuity and resistance. Repair or replace a damaged or defective rheostat.

c. Installation.

(1) Refer to figure 25 and install the controls and instruments, model SECM.

(2) Refer to figure 25 and install the controls and instruments, model CMU–5, in a similar manner.

(3) Refer to paragraph 23 and install the control panel.

46. Ten-Range Switch and Field Rheostat

a. Removal and Disassembly.

(1) Remove the ten-range switch and field rheostat (par. 45).

Note. Match mark inside housing, control contact ring, front disk, and dial plate before disassembly to insure identical location on reassembly.

(2) Remove the field rheostat from the ten-range switch.

(3) Remove the setscrew (24, fig. 26) that secures the handwheel (23) to the variable resistor (31) and remove the handwheel.

(4) Remove the four screws (25) that secure the case (27) to the springs (30) and remove the case. Remove dial (26) from the case.

(5) Remove the two screws (28) and washers (29) and remove the springs (30) from the variable resistor (31).

(6) Remove the six screws (16), lockwashers (15), and three brackets (14) and handwheel (19) from the front disk (12).

(7) Remove the three screws (13) and separate the handwheel from the brackets (14).

(8) Remove the four screws (32), lockwashers (33) and inside housing (4) from the control contact ring (11). Place control contact ring (and assembled part) aside for later disassembly.

(9) Remove the two screws (1), lockwashers (2) and bracket (3) from the inside housing (4).

(10) Remove the screw (5), washers (6 and 7), and clip (8) from the inside housing (4).

(11) Remove screw (38), nut (36) and resistance element (37) from the contact control ring (11).

(12) Remove the front disk (12), and attached parts from the contact control ring (11).

(13) Remove two screws (20), washers (21), insulators (40), four washers (22), and insulator block (39) from the front disk (12).

(14) Remove the five drive screws (18) and dial plate (17) from the front disk.

(15) Remove the two insulation plates (10) from the contact rings (9).

(16) Remove the four spring clips (35) from the control contact ring (11) and the two contact rings (9). Remove the contact rings (9) and electrical contacts (34) from the control contact ring.

b. Cleaning, Inspection, and Repair.

(1) Remove dirt and grease from all non-metallic parts with a clean, dry, lint-free cloth. Clean metal parts in approved cleaning solvent and dry thoroughly.

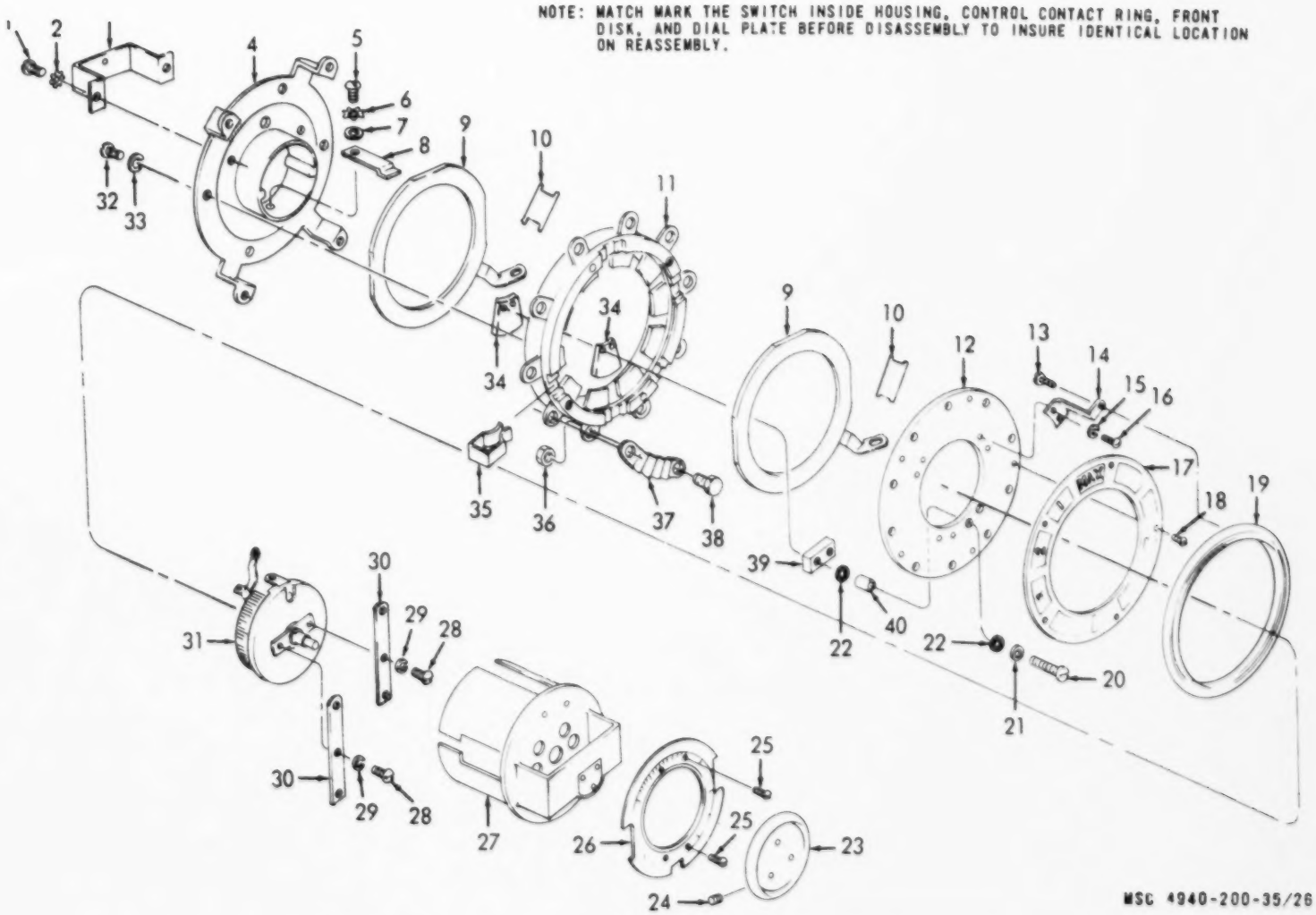


Figure 26. Ten-range switch and field rheostat, disassembly and reassembly.

1 Screw, machine, ¼–20 x ⅜ in. (2 rqr)
2 Washer, lock, IET, ¼ in. (2 rqr)
3 Plug mounting bracket
4 Switch inside housing
5 Screw, machine, No. 10–24 x ⅜ in.
6 Washer, lock, IET, No. 10
7 Washer, flat, brass, No. 10
8 Field rheostat catch
9 Contact ring (2 rqr)
10 Insulation plate (2 rqr)
11 Control contact ring
12 Front disk
13 Screw, self-threading, No. 8–15 x ⅜ in. (3 rqr)
14 Handwheel mounting bracket (3 rqr)
15 Washer, lock, No. 10 (6 rqr)
16 Screw, machine, No. 10–24 x ⅜ in. (6 rqr)
17 Dial plate
18 Screw, drive, No. 6 x ¼ in. (5 rqr)
19 Handwheel
20 Screw, machine, ¼–20 x 1½ in. (2 rqr)
21 Washer, flat, ¼ in. id, ⅝ in. od, 1/16 in. thk (2 rqr)
22 Washer, nonmetallic, 25/64 in. id, ⅝ in. od, ⅛ in. thk (4 rqr)
23 Rheostat handwheel
24 Setscrew, ¼–20 x ⅜ in.
25 Screw, machine, No. 8–32 x ⅜ in. (4 rqr)
26 Field rheostat dial
27 Field rheostat case
28 Screw, machine, No. 10–32 x ¼ in. (2 rqr)
29 Washer, lock, No. 10 (2 rqr)
30 Rheostat mounting spring (2 rqr)
31 Variable resistor
32 Screw, machine, ¼–20 x ⅜ in. (4 rqr)
33 Washer, lock, ¼ in.
34 Movable contact
35 Clip spring (4 rqr)
36 Nut, plain, hex, ⅜–16
37 Resistance element
38 Screw, cap, hex-hd, ⅜–16 x ½ in.
39 Electrical contact
40 Contact bushing (2 rqr)

Figure 26—Continued.

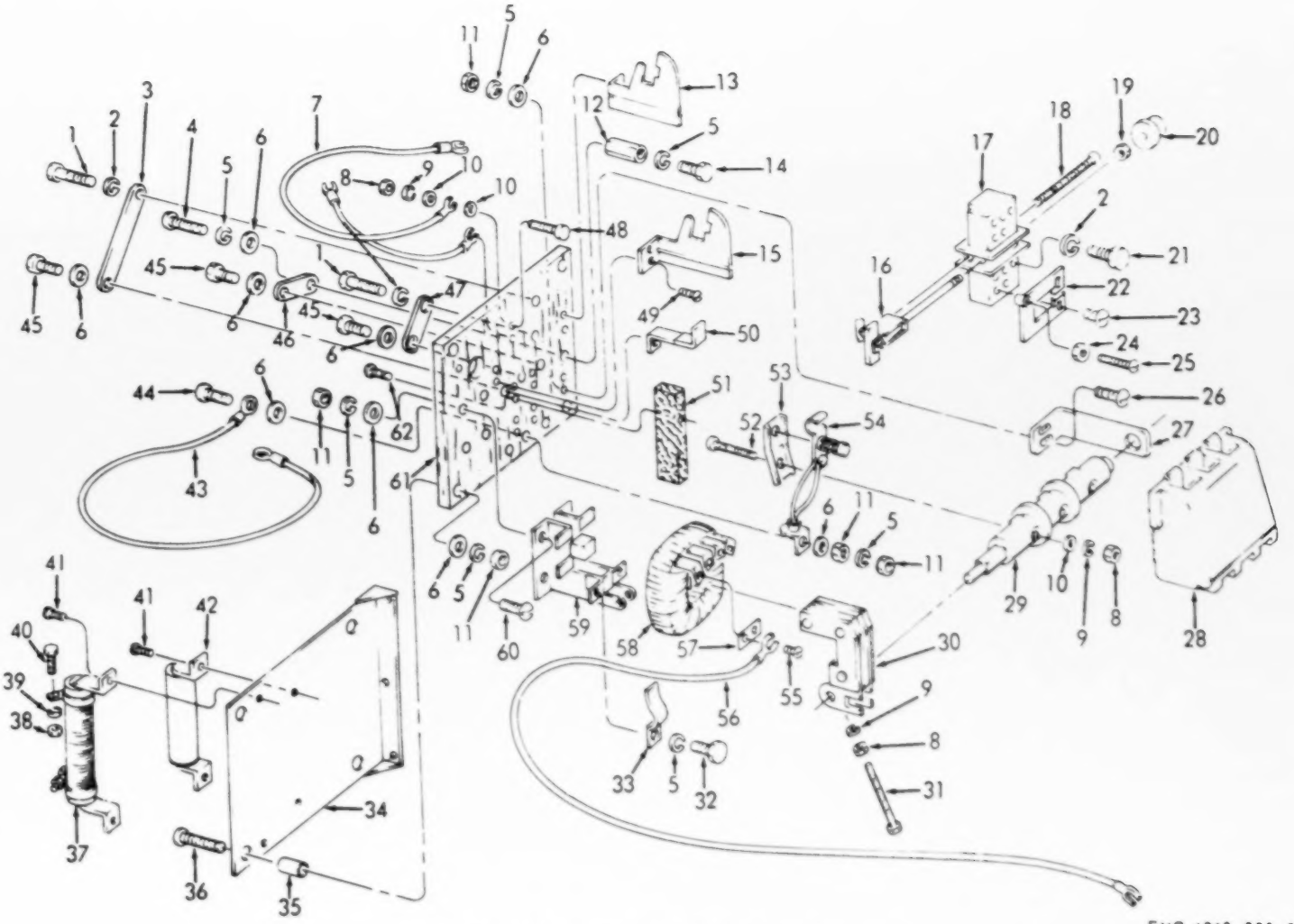


Figure 27. Circuit breaker, disassembly and reassembly.

1 Screw, hex-hd, brass, 5/16–18 x 1¾ in. (2 rqr)
2 Washer, lock, 5/16 in. (2 rqr)
3 Bus bar, left hand
4 Screw, machine, rd-hd, ¼–20 x 1¼ in. (3 rqr)
5 Washer, lock, ¼ in. (18 rqr)
6 Washer, flat, ¼ in. (14 rqr)
7 Electrical lead
8 Nut, hex, No. 10–24 (6 rqr)
9 Washer, lock, No. 10 (6 rqr)
10 Washer, flat, brass, No. 10 (7 rqr)
11 Nut, plain, hex, ¼–20 (15 rqr)
12 Nut, ¼–20 (spec)
13 Arc shield holder, rh
14 Screw, machine, hex-hd, ¼–20 x ⅝ in.
15 Arc shield holder, lh
16 Overload trip assembly
17 Trip assembly block
18 Screw, machine, rd-hd, No. 6–32 x 1¾ in.
19 Nut, lock No. 10–32
20 Overload reset button
21 Screw, machine, hex-rd, 5/16–18 x ¾ in. (2 rqr)
22 Heat element (2 rqr)
23 Screw, machine, rd-hd, ¼–20 x ⅜ in. (4 rqr)
24 Nut, lock, No. 6–32
25 Screw, machine, rd-hd, No. 6–32 x ¾ in. (2 rqr)
26 Screw, machine, rd-hd, ¼–20 x ⅞ in. (2 rqr)
27 Armature support
28 Arc shield
29 Armature shaft assembly
30 Movable yoke
31 Screw, machine, hex-hd, No. 10–24 x 2 in.
32 Screw, cap, hex-hd, ¼–20 x ½ in. (2 rqr)
33 Coil holddown bracket (2 rqr)
34 Switch mounting bracket
35 Spacer, ¼ in. id, 13/32 in. od, ⅜ in. lg (4 rqr)
36 Screw, machine, rd-hd, ¼–20 x 1⅜ in. (4 rqr)
37 Resistor, 30-ohm
38 Nut, hex, No. 6–32 (2 rqr)
39 Washer, lock, No. 6 (2 rqr)
40 Screw, machine, rd-hd, No. 6–32 x ½ in. (2 rqr)
41 Screw, pan-hd, No. 8–32 x ¼ in. (4 rqr)
42 Resistor, 300-ohm
43 Electrical lead
44 Screw, machine, rd-hd, ¼–20 x 1⅜ in. (3 rqr)
45 Screw, machine, hex-hd, ¼–20 x 1 in. (3 rqr)
46 Bus bar, short link
47 Bus bar, center
48 Contact assembly screw (2 rqr)
49 Screw, self-tapping, No. 8–32 x ½ in. (4 rqr)
50 Fixed contact (3 rqr)
51 Arc shield baffle (2 rqr)
52 Screw, machine, rd-hd, No. 10–24 x 1½ in. (3 rqr)
53 Contact mount (3 rqr)
54 Movable contact (3 rqr)
55 Screw, machine, rd-hd, No. 6–32 x ¼ in. (4 rqr)
56 Electrical lead
57 Strap electrical connector
58 Relay coil
59 Fixed yoke
60 Screw, machine, rd-hd, ¼–20 x ⅞ in. (4 rqr)
61 Mounting panel
62 Screw, thread-forming, No. 8–18 x ¾ in.

Figure 27—Continued.

(2) Inspect parts for cracks, breaks, chips, bends, or other damage. Repair or replace all defective parts.

c. Reassembly and Installation.

(1) Position the dial plate (17, fig. 26) on the front disk (12) and secure by installing the five drive screws (18).

(2) Install the two insulators (40), insulator block (39), four washers (22), two washers (21) and screws (20) on the front disk (12). Set this subassembly aside.

Note. Lubricate electrical contacts upon reassembly to assure proper operation. Use approved lubricant.

(3) Position the electrical contacts (34) and contact rings (9) in the control contact ring (11) and secure by installing the four spring clips (35).

(4) Install the insulation plates (10) on the contact rings (9).

(5) Position the resistance element (37) on the contact ring (11) and secure with screw (38) and nut (36).

(6) Install the front disk (12), with attached parts, in the control contact ring (11). Set this subassembly aside.

(7) Position the clip (8) in the inside housing (4) and secure with screw (5) and washers (6 and 7).

(8) Secure the bracket (3) to the inside housing (4) with the two screws (1) and washers (2).

(9) Secure the three brackets (14) to the handwheel (19) with the three screws (13).

(10) Insert the inside housing, with attached parts, in the control contact ring subassembly and secure with four screws (32) and washers (33).

(11) Secure the three handwheel mounting brackets (14) to the front disk (12) with the six screws (16) and washers (15).

(12) Secure the two springs (30) to the variable resistor (31) with the two screws (28) and washers (29).

(13) Position the dial (26) on the case (27) and secure dial and case to the springs (30) with the four screws (25).

(14) Place the handwheel (23) on the variable resistor (31) and secure with the setscrew (24).

(15) Install the field rheostat in the ten-range switch.

(16) Install the ten-range switch and field rheostat on the control panel (par. 45). (Refer to wiring diagram, fig. 1 or fig. 2).

47. Circuit Breaker

a. Removal. Refer to paragraph 45 and remove the circuit breaker and bracket.

b. Disassembly. Refer to figure 27 and disassemble the circuit breaker.

Caution: **Be very careful when handling the arc shield. It is extremely fragile.**

c. Cleaning, Inspection, and Repair.

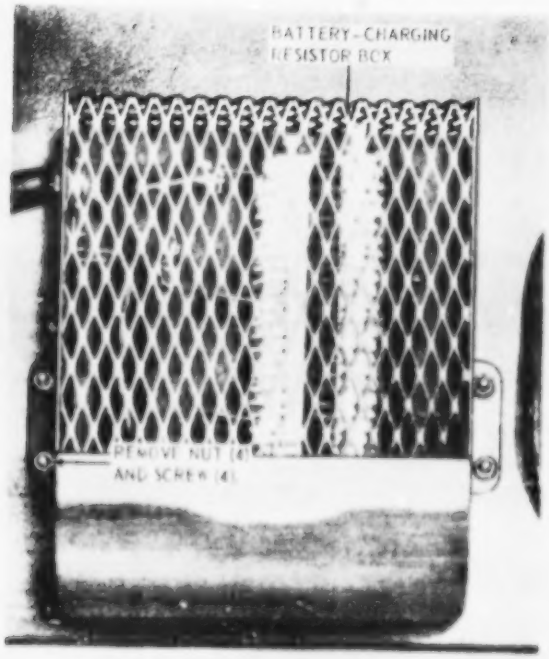
(1) Clean with a stiff brush and blow clean with dry, compressed air.

(2) Inspect the arc shield for cracks, breaks, or chips. Replace a defective arc shield.

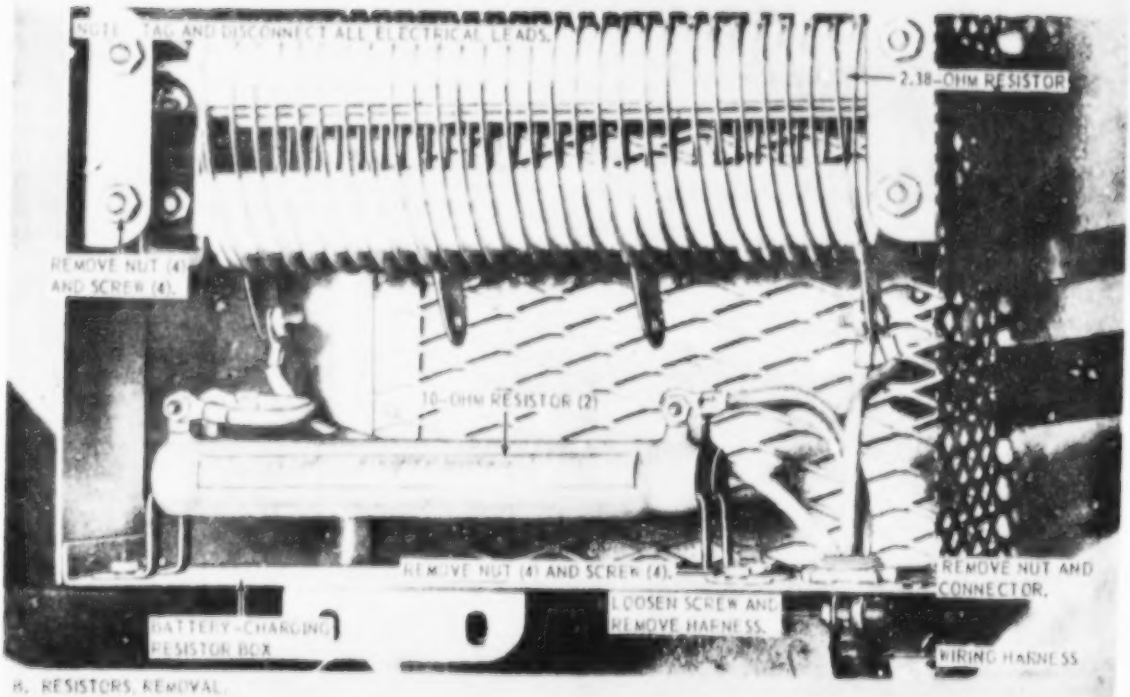
(3) Inspect the armature shaft assembly for defective insulation or evidence of shorting of electrical current. Replace a defective armature shaft.

(4) Inspect the fixed and movable contacts for excessive wear, pits, or corrosion. Remove corrosion with No. 00 sandpaper. Replace a badly pitted contact.

(5) Inspect the yokes for wear or damage. Repair or replace a worn or damaged yoke.



A. RESISTOR BOX, REMOVAL.


NOTE: TAG AND DISCONNECT ALL ELECTRICAL LEADS.
2.38-OHM RESISTOR
REMOVE NUT (4) AND SCREW (4).
10-OHM RESISTOR (2)
REMOVE NUT (4) AND SCREW (4).
REMOVE NUT AND CONNECTOR.
LOOSEN SCREW AND REMOVE HARNESS.
BATTERY-CHARGING RESISTOR BOX
WIRING HARNESS

B. RESISTORS, REMOVAL.

EWC 4940-700-35/24

Figure 28. Battery-charging resistor box and resistors, removal and installation.

(6) Inspect the overlaid trip assembly for cracked or broken block, damaged bimetal thermal bracket, pitted contact points or maladjustment. Repair or replace a defective overload trip assembly.

(7) Inspect the mounting panel for cracks or breaks. Replace a defective mounting panel.

d. Reassembly. Refer to figure 27 and reassemble the circuit breaker.

e. Installation. Refer to paragraph 45 and install the circuit breaker and bracket.

Section VIII. BATTERY-CHARGING RESISTORS AND RESISTOR BOX

48. General

The battery-charging resistors are used to control the rate of charge during any battery-charging operation. A 2.38-ohm resistor is used during both high- and low-rate charging; the 10-ohm resistors, used during low-rate charging only, are connected in series with the 2.38-ohm resistor. The resistors are placed in the circuit by means of the battery-charging rate selector switch.

49. Battery-Charging Resistor Box and Resistors

a. Removal.

(1) Refer to figure 5 and tag and disconnect the battery-charging resistor electrical leads from the ammeter and battery-charging rate selector switch.

(2) Refer to figure 28 and remove the battery-charging resistor box and resistors.

b. Cleaning and Inspection.

(1) Blow accumulated dust and dirt from the resistors with a stream of clean, dry, compressed air at low pressure.

(2) Visually inspect the resistors for breaks, damage, and loose or broken terminals. Replace a damaged or defective resistor.

(3) Use a multimeter and test the resistance of each resistor. Replace any resistor that does not have the rated resistance.

(4) Inspect the resistor box and all mounting hardware for damage or defects. Repair or replace the resistor box and replace all defective mounting hardware.

c. Installation.

(1) Refer to figure 28 and install the battery-charging resistors and resistor box.

(2) Refer to figure 5 and connect the battery-charging resistor electrical leads to the ammeter and battery-charging rate selector switch.

Section IX. RECEPTACLE BOXES AND CABLES

50. General

Two 110-volt electrical receptacles are provided on the shop set body. These receptacles provide a convenient source of power at the front and rear of the body for the operation of electrical tools and equipment. Power is transmitted through an armored cable connected at the rear of the 110-volt load terminals on the control panel.

51. Receptacle Boxes and Cables

a. Removal.

(1) Refer to TM 5-4940-200-12 and remove the cover and receptacle.

(2) Refer to paragraph 23 and disconnect the receptacle box cable leads at the control panel.

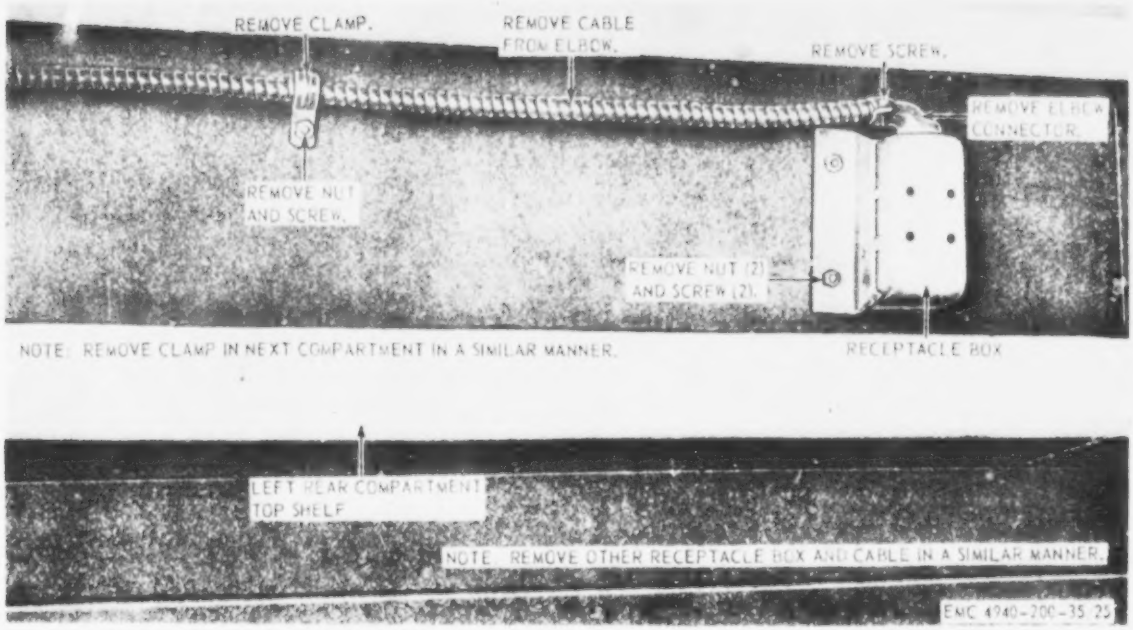

REMOVE CLAMP.
REMOVE CABLE FROM ELBOW.
REMOVE SCREW.
REMOVE ELBOW CONNECTOR.
REMOVE NUT AND SCREW.
REMOVE NUT (2) AND SCREW (2).
NOTE: REMOVE CLAMP IN NEXT COMPARTMENT IN A SIMILAR MANNER.
RECEPTACLE BOX
LEFT REAR COMPARTMENT TOP SHELF
NOTE: REMOVE OTHER RECEPTACLE BOX AND CABLE IN A SIMILAR MANNER.
EMC 4940-200-35 25

Figure 29. Receptacle boxes and cables, removal and installation.

(3) Refer to figure 29 and remove the receptacle box and cable.

b. Cleaning and Inspection.

(1) Clean the receptacle box with an approved cleaning solvent. Clean the armored cable with a stiff brush.

(2) Inspect the receptacle box for cracks or breaks. Replace a damaged receptacle box.

(3) Inspect the armored cable for cracks or breaks or other damage. Replace a damaged or defective cable.

c. Installation.

(1) Refer to figure 29 and install the receptacle box and cable.

(2) Refer to paragraph 23 and reconnect the receptacle box cable leads at the control panel.

(3) Refer to TM 5–4940–200–12 and install the receptacle and cover.

Section X. VEHICLE FRAME EXTENSION AND SHOP SET BODY

52. General

The shop set body is mounted on a ¾-ton 4 by 4, modified truck frame. The body is constructed of aluminum with riveted joints. It has weathertight compartments on each side for storing tools and equipment. The compartments are designed to accommodate specific items so that the load is balanced. A generator-welder is mounted inside the body and can be operated by an integrated power takeoff or an outside electrical power source.

53. Frame Assembly

a. General. The frame assembly is a rear extension welded to the truck frame to provide support to the shop set body that is longer than the standard ¾-ton truck body.

b. Removal.

(1) Refer to paragraph 24 and remove the shop set body.

(2) Refer to TM 5–4940–200–12 and remove the taillights and taillight brackets.

(3) Refer to TM 9–8030 and remove the bumpers, lifting eyes, and pintle.

(4) Refer to figure 30 and remove the frame assembly.

c. Cleaning, Inspection, and Repair.

(1) Clean with a steam cleaner.

(2) Inspect the frame for cracks and breaks or other damage. Repair cracks and breaks by welding. Replace a bent or sprung frame.

(3) If it becomes necessary to remove a component of the frame, replace it with a new part.

d. Installation.

(1) Refer to figure 30 and install the frame assembly.

Note. Aline and clamp each component in place before welding.

(2) Refer to TM 5–4940–200–12 and install the taillight brackets, and taillights.

(3) Refer to TM 9–8030 and install the bumpers, lifting eyes, and pintle.

(4) Refer to paragraph 24 and install the shop set body.

54. Shop Set Body

a. Removal. Refer to paragraph 24 and remove the shop set body.

b. Disassembly.

(1) Refer to TM 5–4940–200–12 and remove the doors, brackets, tailgate, tailgate chain, tailgate latch, access plates, door guides, cable hanger

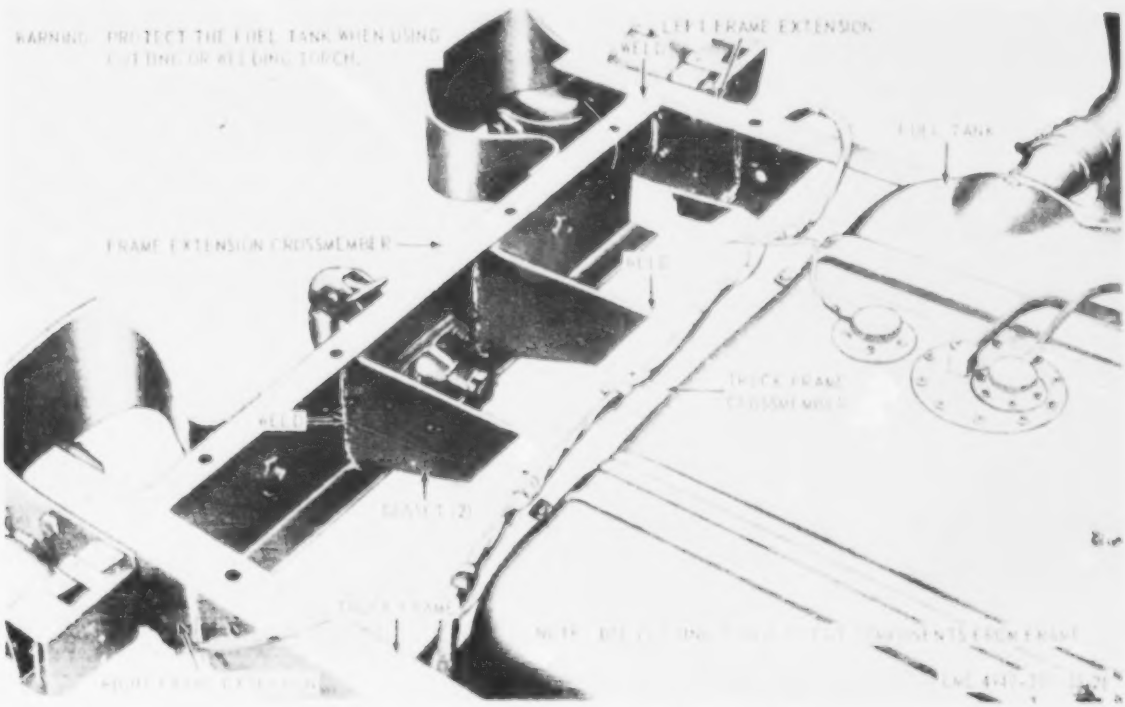
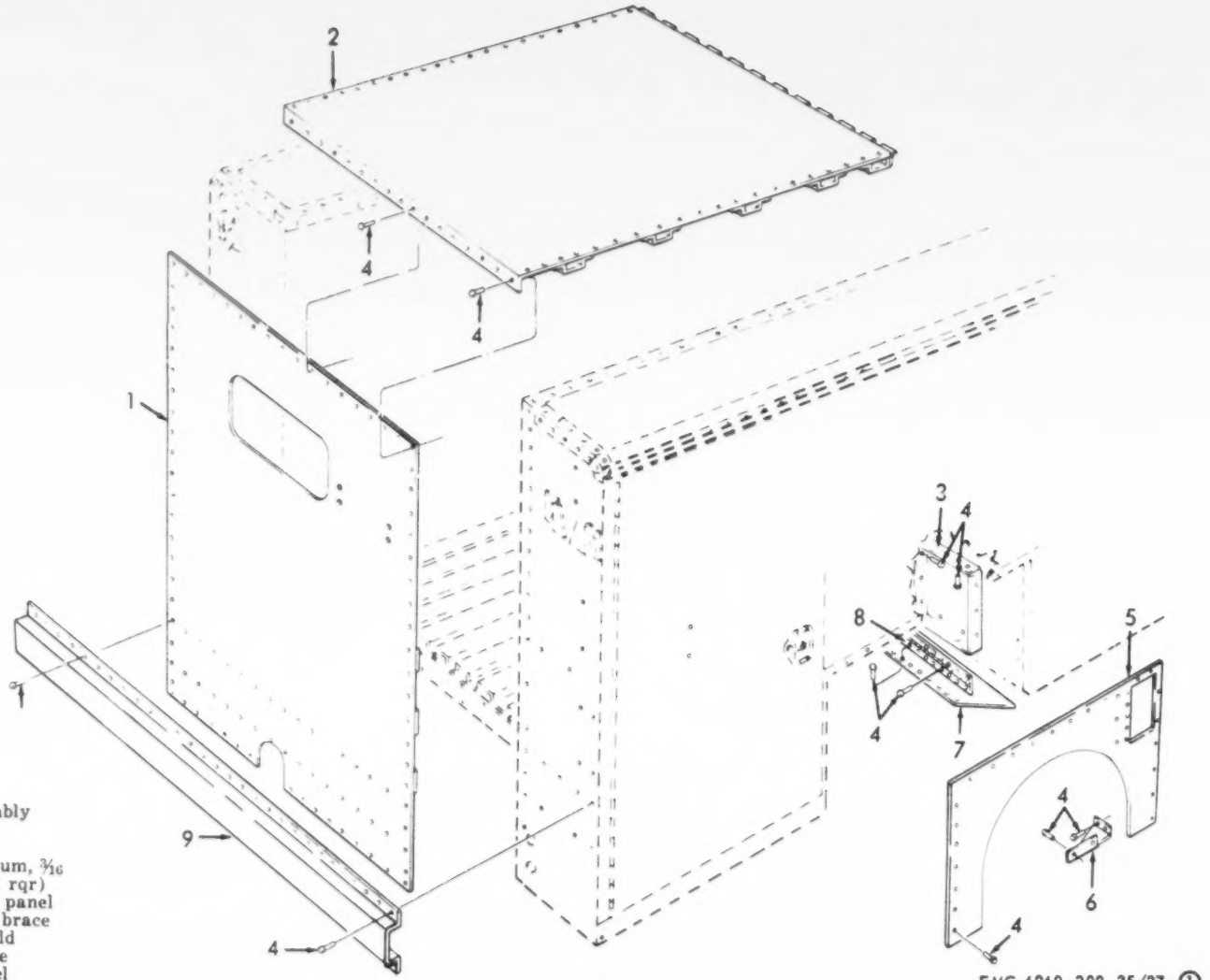
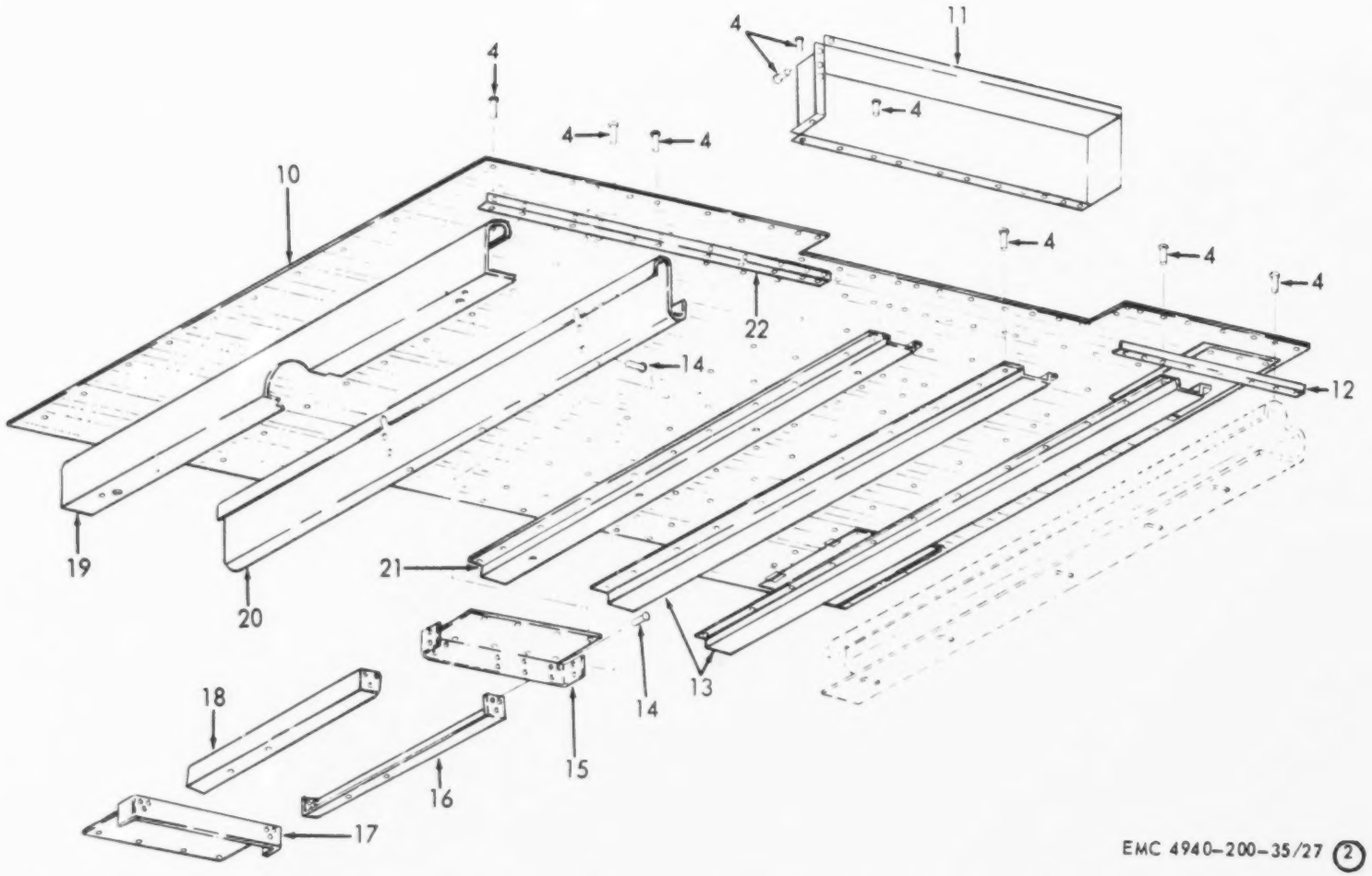


Figure 30. Frame assembly, removal and installation.



1 Front panel assembly
2 Top panel
3 Top splash shield
4 Rivet, solid aluminum, 3/16 in. x 7/16 in. (488 rqr)
5 Left wheelhousing panel
6 Wheelhouse panel brace
7 Bottom splash shield
8 Splash shield hinge
9 Front body channel

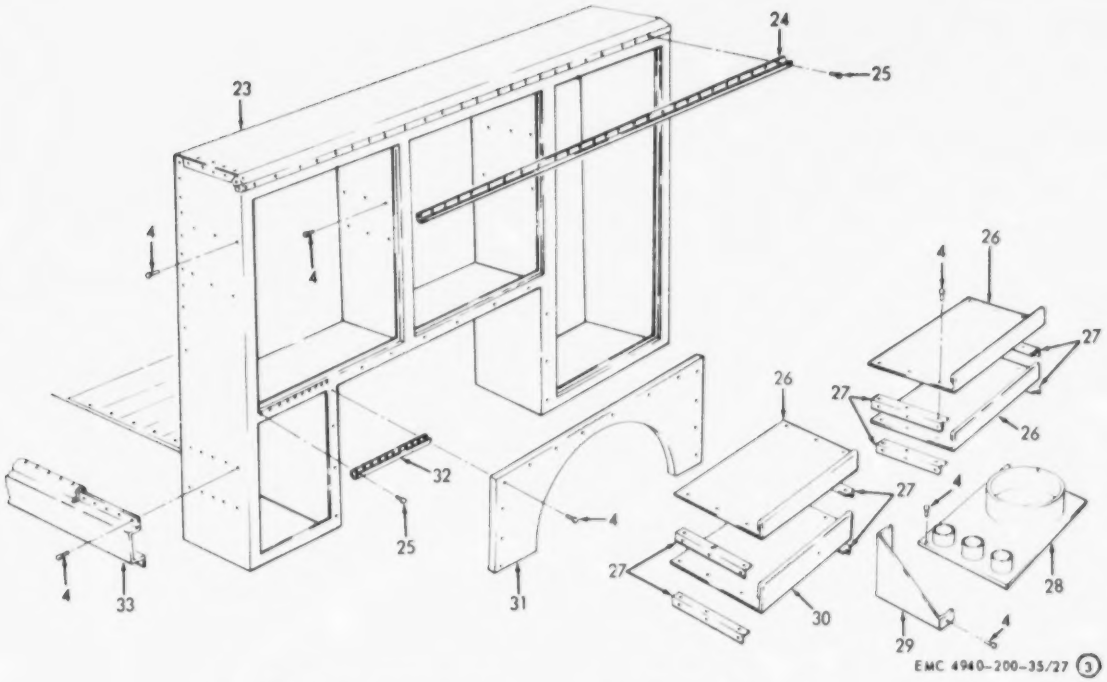
Figure 31. Shop set body, model SECM, disassembly and reassembly.



EMC 4940-200-35/27 (2)

10 Floor
11 Wheelwell (2 rqr)
12 Short floor support
13 Rear intermediate crossmember (2 rqr)
14 Rivet, solid, aluminum, ¼ in. x ⅞ in. (97 rqr)
15 Power takeoff box left rail
16 Power takeoff box rear crossmember
17 Power takeoff box right rail
18 Power takeoff box front crossmember
19 Front crossmember
20 Front intermediate crossmember
21 Wheelhouse crossmember
22 Long floor support

Figure 31—Continued.



23	Right side compartment assembly	29	Shelf divider (2 rqr)
24	Drip ledge (2 rqr)	30	Lower shelf, right rear compartment
25	Rivet, aluminum, ⅛ in. x 5/16 in. (56 rqr)	31	Right wheelhousing panel
26	Shelf (6 rqr)	32	Short drip ledge (2 rqr)
27	Shelf support (18 rqr)	33	Rear body crossmember
28	Tank retainer		

Figure 31—Continued.

brackets, cylinder rack assembly, striker plates, door moulding and seal, gage compartment door, hose bracket, control panel screen, cylinder guide, and hinged roof panel.

(2) Refer to paragraph 23 and remove the control panel.

(3) Refer to paragraph 21 and remove the power takeoff.

(4) Refer to paragraph 22 and remove the generator-welder.

(5) Refer to paragraph 49 and remove the battery-charging resistor box and resistors.

(6) Refer to paragraph 51 and remove the electrical receptacle boxes and cables.

(7) Refer to paragraph 29 and remove the engine overspeed relay (model SECM).

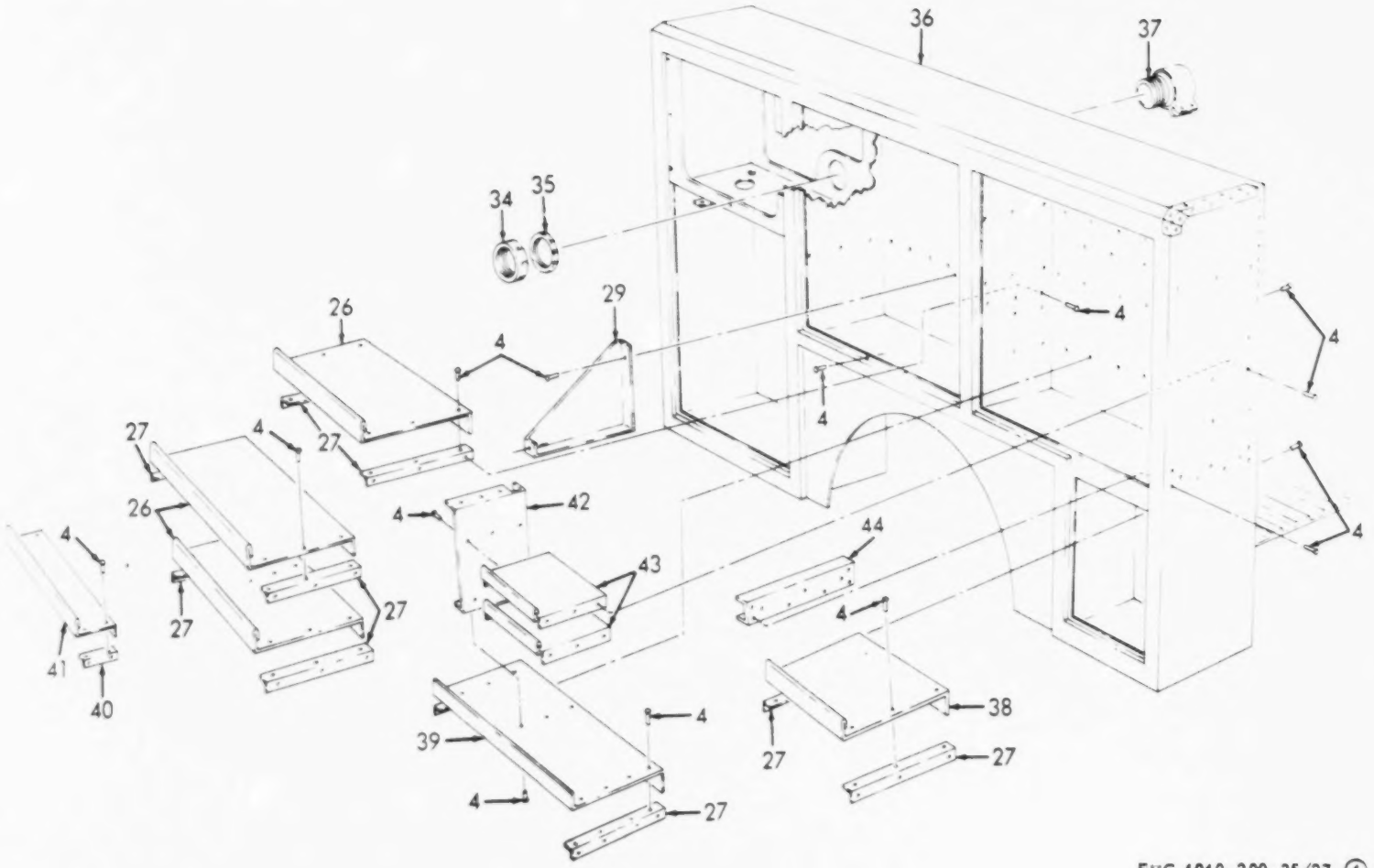
(8) Refer to figure 31 and disassemble the model SECM shop set body. Disassemble the model CMU-5 shop set body in a similar manner.

c. Cleaning, Inspection, and Repair.

(1) Clean the shop set body with a steam cleaner to remove all dirt, oil, and dust.

(2) Inspect each compartment for loose rivets, dents, cracks, holes, or other damage.

(3) Repeen or replace all loose rivets, straighten dents, weld cracks or breaks, and patch and weld holes.



EMC 4940-200-35/27 (4)

34 Conduit capnut
35 Conduit nut
36 Left side compartment assembly
37 Box connector
38 Shelf (short)
39 Buttom shelf (left rear compartment)
40 Shelf support (short)
41 Shelf (narrow) (2 rqr)
42 Gage compartment side
43 Gage compartment shelf (2 rqr)
44 Tailgate channel (2 rqr)

Figure 31—Continued.

(4) Inspect the floor, head panel, and top panel for dents, cracks, holes, or other damage.

(5) Straighten dents, weld cracks and breaks, and patch holes. Replace a badly damaged floor, head panel, or top panel.

d. Reassembly.

(1) Refer to figure 31 and reassemble the model SECM shop set body. Reassemble the model CMU–5 shop set body in a similar manner.

(2) Refer to paragraph 29 and install the engine overspeed relay (model SECM).

(3) Refer to paragraph 51 and install the receptacle boxes and cables.

(4) Refer to paragraph 49 and install the battery-charging resistor box and resistors.

(5) Refer to paragraph 22 and install the generator-welder.

(6) Refer to paragraph 21 and install the power takeoff.

(7) Refer to paragraph 23 and install the control panel.

(8) Refer to TM 5–4940–200–12 and install the doors, brackets, tailgate, tailgate chain, tailgate latch, access plates, door guides, cable hanger brackets, cylinder rack assembly, striker plates, door moulding and seal, gage compartment door, hose bracket, control panel screen, cylinder guide, and hinged roof panel.

e. Installation. Refer to paragraph 24 and install the shop set body.

APPENDIX I

REFERENCES

1. Dictionaries of Terms and Abbreviations

AR 320–5	Dictionary of United States Army Terms.
AR 320–50	Authorized Abbreviations and Brevity Codes.

2. Field Maintenance

TM 5–764	Electric Motor and Generator Repair.

3. Fire Protection

TM 5–687	Repairs and Utilities: Fire Protection Equipment and Appliances; Inspections, Operations, and Preventive Maintenance.
TM 9–1799	Ordnance Maintenance: Fire Extinguishers.

4. Lubrication

LO 5–4940–200–12	Shop Equipment, Contact Maintenance, Truck Mounted: Set No. 3 (Southwest Truck Body Co. Model SECM).

5. Operator and Organizational Maintenance

TM 5–4940–200–12	Operator and Organizational Maintenance Manual, Shop Equipment, Contact Maintenance, Truck Mounted, Set No. 3 (Southwest Model SECM) Serial No. S–3–628 through S–3–720 and (Davey Model CMU–5) Serial No. 33343 through 33343–234 FSN 4940–294–9518.
TM 9–8030	Operation and Organizational Maintenance, ¾-Ton 4 x 4 Cargo Truck M37, ¾-Ton 4 x 4 Command Truck M42, ¾-Ton 4 x 4 Ambulance Truck M43, and ¾-Ton 4 x 4 Telephone Installation Light Maintenance and Cable Splicing Truck V–41/GT.

6. Painting and Preservation

TB ENG 60	Preservation and Painting of Serviceable Corps of Engineer Equipment.

7. Preventive Maintenance

AR 750–5	Organization, Policies, and Responsibilities for Maintenance Operations.
TB 9–1870–1/1	Care and Maintenance of Pneumatic Tires; New Type Valve Assemblies for Inner Tubes.
TM 9–1870–1	Care and Maintenance of Pneumatic Tires.
TM 5–505	Maintenance of Engineer Equipment.
TM 9–2852	Welding, Theory and Application.
TM 9–6140–200–15	Storage Batteries: Lead-Acid Type.
TM 38–750	The Army Equipment Record System and Procedures.

8. Publication Indexes

DA Pam 108–1	Index of Army Motion Pictures, Film Strips, Slides and Phono-Recordings.
DA Pam 310–1	Index of Administrative Publications.
DA Pam 310–2	Index of Blank Forms.
DA Pam 310–3	Index of Training Publications.
DA Pam 310–4	Index of Technical Manuals, Technical Bulletins, Lubrication Orders, and Modification Work Orders.
DA Pam 310–5	Index of Graphic Training Aids and Devices.
DA Pam 310–25	Index of Supply Manuals—Corps of Engineers.

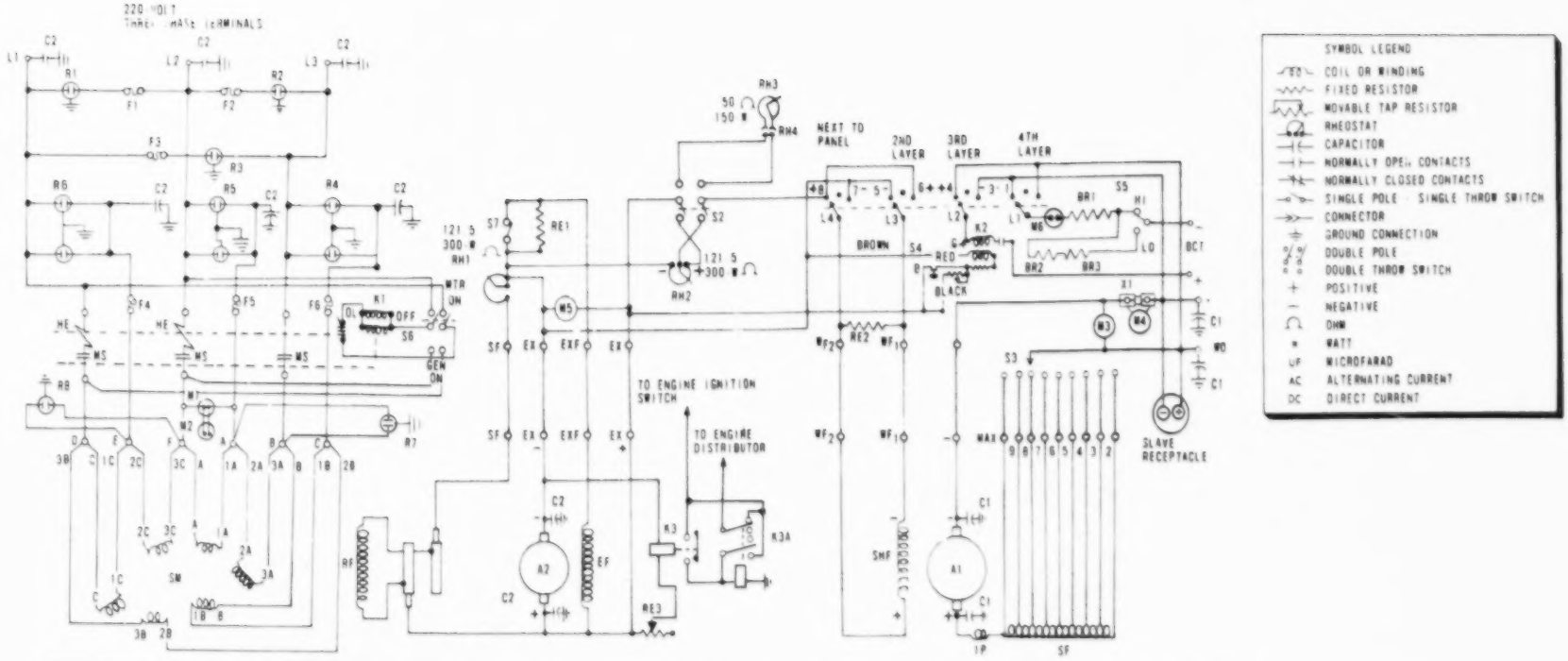
9. Supply Publications

TM 5–4940–200–20P	Organizational Maintenance Repair Parts and Special Tool Lists. Shop Equipment, Contact Maintenance, Truck Mounted: Set No. 3 (Southwest Model SECM) Serial No. S–3–628 through S–3–720 and (Davey Model CMU–5) Serial No. 33343 through 33343–234 FSN 4940–294–9518.
TM 5–4940–200–35P	Field and Depot Maintenance Repair Parts and Special Tool Lists. Shop Equipment, Contact Maintenance, Truck Mounted: Set No. 3 (Southwest Model SECM) Serial No. S–3–628 through S–3–720 and (Davey Model CMU–5) Serial No. 33343 through 33343–234 FSN 4940–294–9518.

INDEX

	Paragraph	Page
Adapter drive, governor	27	20
Adjustment:		
Engine overspeed relay, model CMU–5	30*d*	24
Engine overspeed relay, model SECM	29*f*	24
Engine speed governor	26*e*	20
Power takeoff	38*f*	36
Alternating current voltmeter fails to register	16	14
Ammeter fails to register:		
Alternating current	16	14
Battery-charging	17	14
Direct current	15	14
Armature:		
Exciter	42*a*	40
Generator-welder	42*c*	40
Battery-charging ammeter fails to register	17	14
Battery-charging resistor box and resistors	49	54
Body, shop set	24, 54	18, 56
Brake lock, electric	32	27
Breaker, circuit	47	52
Cables, receptacles boxes	51	54
Circuit breaker	47	52
Lacks current	12	14
Will not stay closed	13	14
Clutch operating linkage bracket assembly	39	36
Controls and instruments	45	44
Control panel	23	17
Coupling flange, and declutcher	34	28
Data. (*see* Tabulated data.)		
Declutcher and coupling flange	34	28
Description	3	2
Direct current ammeter or voltmeter fails to register	15	14
Electric brake lock	32	27
Engine speed fluctuates	9	13
Engine speed governor	26	20
Adjustment	26*e*	20
Engine overspeed relay, model CMU–5	30	24
Adjustment	30*d*	24
Engine overspeed relay, model SECM	29	23
Adjustment	29*f*	24
Exciter armature	42*a*	40
On-equipment testing	42	40
Exciter field group	42*c*	40
On-equipment testing	42	40
Field and dtpot maintenance repair parts	6	13
Field rheostat	46	47
Forms, record and report	2	2
Frame assembly	53	55
Frequency meter fails to register	18	14
Generator-welder	22, 43	15, 40
Armature	42*c*	40
On-equipment testing	42	40
Base	22	15
Does not deliver rated output	11	13
General	41	40
Testing during or after disassembly	43*b*	40
Will not start or come up to speed	10	13
Governor adapter drive	27	20
Governor, engine speed	26	20
Instruments and controls	45	44
Linkage bracket assembly, clutch operating	39	36
Maintenance repair parts, field and depot	6	13
Motor stator	42*d*	40
On-equipment testing	42	40
On-equipment testing	42	40
Exciter armature	42*a*	40
Exciter field group	42*c*	40
Generator-welder armature	42*c*	40
Motor stator	42*d*	40
Revolving field	42*b*	40

	Paragraph	Page
Revolving field (*continued*)		
Shunt field	42*f*	40
Welding generator interpole group	42*h*	40
Welding generator series field group	42*g*	40
Overspeed relay, engine, model CMU–5	30	24
Overspeed relay, engine, model SECM	29	23
Panel, control	23	17
Polarity fails to reverse	14	14
Power takeoff	21, 38	14, 33
Adjustment	38*f*	36
Noisy	20	14
Universal joint and shaft assembly	36	30
Upper linkage	40	36
Propeller shaft	35	30
Receptacle boxes and cables	51	54
Record and report forms	2	2
Repair parts, field and depot maintenance	6	13
Resistors, battery-charging resistor box and	49	54
Revolving field	42*b*	40
On-equipment testing	42	40
Shaft assembly, power takeoff universal joint	36	30
Shaft, propeller	35	30
Shop set body	24, 54	18, 56
Shunt field	42*f*	40
On-equipment testing	42	40
Specially designed tools and equipment	7	13
Special tools and equipment	5	13
Switch, field rheostat and ten-range	46	47
Tabulated data	4	2
Exciter classification and rating	4*b*	3
Exciter repair and replacement standards	4*e*	3
Generator-welder repair and replacement standards	4*f*	4
Motor-generator classification and rating	4*a*	2
Tabulated data (*continued*)		
Motor-generator repair and replacement standards	4*d*	3
Schematic wiring diagrams	4*g*	6
Time standards	4*h*	6
Welder classification and rating	4*c*	3
Ten-range switch and field rheostat	46	47
Tools		
Special	5	13
Specially designed	7	13
Troubleshooting:		
Alternating current ammeter or voltmeter fails to register	16	14
Battery-charging ammeter fails to register	17	14
Circuit breaker lacks current when on	12	14
Circuit breaker will not stay closed	13	14
Direct current ammeter or voltmeter fails to register	15	14
Engine speed fluctuates	9	13
Frequency meter fails to register	18	14
General	8	13
Generator-welder does not deliver rated output	11	13
Generator-welder will not start or come up to speed	10	13
Polarity fails to reverse	14	14
Power takeoff noisy	20	14
Welding arc breaks down and cannot be maintained	19	14
Universal joint and shaft assembly, power takeoff	36	30
Upper linkage, power takeoff	40	36
Voltmeter fails to register:		
Alternating current	16	14
Direct current	15	14
Welding arc breaks down and cannot be maintained	19	14
Welding generator interpole group	42*h*	40
On-equipment testing	42	40
Welding generator series field group	42*g*	40
On-equipment testing	42	40



DEVICE LEGEND					
A1	WELDER ARMATURE	M1	AC VOLTMETER	RE3	OVERSPEED RESISTOR 10 000 OHM 50 WATT
A2	EXCITER ARMATURE	M2	FREQUENCY METER	RF	REVOLVING FIELD
BCT	BATTERY CHARGING TERMINALS	M3	DC VOLTMETER	RH1	MOTOR OPERATION RHEOSTAT
BR1	BATTERY CHARGING BALLAST RESISTOR 2 38 OHM	M4	DC AMMETER	RH2	ENGINE STARTING CONTROL RHEOSTAT
BR2	BATTERY CHARGING RESISTOR 100 WATT 10 OHM	M5	HOUR METER	RH3	WELDING RHEOSTAT
BR3	BATTERY CHARGING RESISTOR 100 WATT 10 OHM	M6	BATTERY CHARGING AMMETER	S1	WELDING POLARITY CONTROL SWITCH
C1	CAPACITOR (0 25 UF 500V AC/DC)	MS	CIRCUIT BREAKER	S2	WELD OFF ENGINE START SWITCH
C2	CAPACITOR (0 10 UF 500V AC/DC)	OL	OVERLOAD RESET SWITCH	S3	TEN RANGE SWITCH
EF	EXCITER FIELDS	R1	220 VOLT RECEPTACLE CONNECTOR	S4	REVERSE CURRENT RESET SWITCH
F1 F2 F3	FUSES 10 AMPERE	R2	220 VOLT RECEPTACLE CONNECTOR	S5	BATTERY CHARGING RATE SELECTOR
F4 F5 F6	FUSES 30 AMPERE	R3	220 VOLT RECEPTACLE CONNECTOR	S6	MOTOR GENERATOR SWITCH
HE	OVERLOAD SWITCH HEAT ELEMENT (45 AMPERE)	R4	110 VOLT RECEPTACLE CONNECTOR	S7	50 60 CYCLE SELECTOR SWITCH
IP	INTERPOLE WINDING	R5	110 VOLT RECEPTACLE CONNECTOR	SF	WELDER SERIES FIELD
K1	NO VOLTAGE RELEASE COIL	R6	110 VOLT RECEPTACLE CONNECTOR	SHF	SHUNT FIELD
K2	REVERSE CURRENT RELAY	R7	110 VOLT BODY OUTLET RECEPTACL CONNECTOR (FRONT)	SM	MOTOR GENERATOR STATOR
K3	OVERSPEED RELAY SWITCH	R8	110 VOLT BODY OUTLET RECEPTACL CONNECTOR (REAR)	WO	WELDING ELECTRODE TERMINALS
K3A	AUXILIARY OVERSPEED RELAY SWITCH	RE1	60 CYCLE OPERATION RESISTOR 30 OHM 40 WATT	X1	AMMETER SHUNT
		RE2	FIELD DISCHARGE RESISTOR 300 OHM 100 WATT		

MSC 4940 200 35 /

Figure 2. Schematic wiring diagram, model CM1-5.